

# DIODES

- RECTIFIER DIODES
- AVALANCHE DIODES
- FAST DIODES
- FAST AVALANCHE DIODES
- ROTOR DIODES
- SILICON SURGE VOLTAGE SUPPRESSORS



## RECTIFIER DIODES (STUD DESIGN)



| Type              | $V_{RRM}$ | $I_{F(AV)}$<br>( $T_C, ^\circ C$ ) | $I_{FSM}$<br>10 ms | $V_{FM}/I_{FM}$ | $V_{TO}$ | $r_T$      | $R_{th(j-c)}$ | $T_{VJM}$  | $M_d$   | Case |
|-------------------|-----------|------------------------------------|--------------------|-----------------|----------|------------|---------------|------------|---------|------|
|                   | V         | A                                  | kA                 | V/A             | V        | m $\Omega$ | $^\circ C/W$  | $^\circ C$ | Nm      |      |
| D212-10, D212-10X | 100-1600  | 10(150)                            | 0.25               | 1.35/31         | 0.94     | 19.600     | 2.70          | 190        | 0.9-1.1 | SD1  |
| D212-16, D212-16X | 100-1600  | 16(150)                            | 0.27               | 1.35/50         | 0.84     | 11.250     | 1.90          |            |         |      |
| D212-25, D212-25X | 100-1600  | 25(150)                            | 0.34               | 1.35/78         | 0.78     | 8.150      | 1.25          |            |         |      |
| D222-32, D222-32  | 100-1600  | 32(150)                            | 0.46               | 1.35/100        | 0.86     | 6.500      | 0.90          | 190        | 1.4-1.8 | SD2  |
| D222-40, D222-40X | 100-1600  | 40(150)                            | 0.55               | 1.35/125        | 0.80     | 4.623      | 0.80          |            |         |      |
| D232-50, D232-50X | 100-1600  | 50(150)                            | 1.20               | 1.35/157        | 0.92     | 2.740      | 0.60          | 190        | 5.3-5.7 | SD3  |
| D232-63, D232-63X | 100-1600  | 63(150)                            | 1.30               | 1.35/198        | 0.82     | 2.850      | 0.50          |            |         |      |
| D232-80, D232-80X | 100-1600  | 80(150)                            | 1.30               | 1.35/250        | 0.76     | 2.360      | 0.40          |            |         |      |
| D141-100          | 300-1600  | 100(135)                           | 2.20               | 1.35/314        | 0.95     | 1.600      | 0.40          | 190        | 6-10    | SD4  |
| D141-100X         | 300-1600  | 100(135)                           | 2.00               | 1.45/314        | 0.95     | 1.600      | 0.40          |            |         |      |
| D151-125          | 300-1600  | 125(140)                           | 3.00               | 1.35/392        | 0.90     | 1.300      | 0.30          | 190        | 10-20   | SD5  |
| D151-160          | 300-1600  | 160(140)                           | 4.50               | 1.35/502        | 0.90     | 1.000      | 0.24          |            |         |      |
| D161-200          | 300-1800  | 200(145)                           | 5.50               | 1.35/628        | 0.90     | 0.850      | 0.15          | 190        | 20-30   | SD6  |
| D161-200X         | 300-1600  | 200(125)                           | 5.50               | 1.35/628        | 0.90     | 0.850      | 0.15          |            |         |      |
| D161-250          | 300-1800  | 250(140)                           | 6.40               | 1.35/785        | 0.90     | 0.640      | 0.15          |            |         |      |
| D161-250X         | 300-1600  | 250(140)                           | 6.40               | 1.45/785        | 0.90     | 0.765      | 0.14          |            |         |      |
| D161-320          | 300-1600  | 320(130)                           | 7.50               | 1.35/1005       | 0.90     | 0.500      | 0.15          |            |         |      |
| D161-320X         | 300-1600  | 320(130)                           | 7.50               | 1.50/1005       | 0.90     | 0.650      | 0.13          |            |         |      |
| D161-400          | 300-1600  | 400(124)                           | 8.25               | 1.40/1256       | 0.90     | 0.350      | 0.13          |            |         |      |
| D271-250          | 2600-3000 | 310(104)                           | 4.5                | 1.60/785        | 0.90     | 1.40       | 0.090         | 160        | 25-35   | SD7  |
| D171-400          | 300-1800  | 400(145)                           | 14.00              | 1.45/1256       | 0.90     | 0.560      | 0.085         | 190        |         |      |

| Case | a, mm   | b, mm | l, mm | SW   |           |
|------|---------|-------|-------|------|-----------|
|      |         |       |       |      | Diagram   |
| SD1  | M5      | 11    | 18    | 11   | SD1...SD3 |
| SD2  | M6      | 12    | 26    | 14   |           |
| SD3  | M8      | 14    | 35    | 17   | SD4...SD7 |
| SD4  | M10     | 13    | 150   | 25   |           |
| SD5  | M12     | 18    | 150   | 30,5 |           |
| SD6  | M20x1.5 | 16    | 200   | 35,5 |           |
| SD7  | M24x1.5 | 19    | 250   | 45,5 |           |

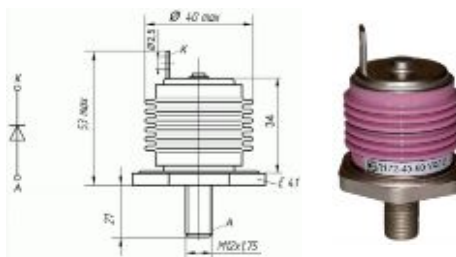
### NEW HIGH VOLTAGE STUD DESIGN DIODE D172-40-60

**Features:**

- Hermetic metal-ceramic case
- Internal pressure contacts, providing high cycle load resistance
- Threaded stud M12
- $V_{RRM}$  up to 6000 V

**Applications:**

- Non-controlled and half-controlled high voltage rectifier bridges
- All applications for high power rectifier diodes



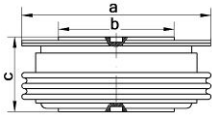
| Type    | $V_{RRM}$ | $I_{RRM}$ | $I_{F(AV)}$<br>$T_C = 85^\circ C$ | $I_{FSM}$<br>10ms | $V_{FM}/I_{FM}$ | $R_{th(j-c)}$ | $T_{VJM}$  |
|---------|-----------|-----------|-----------------------------------|-------------------|-----------------|---------------|------------|
|         | V         | mA        | A                                 | A                 | V/A             | $^\circ C/W$  | $^\circ C$ |
| D172-40 | 5000-6000 | 15        | 40                                | 250               | 1.55/125        | 0.45          | 125        |

## RECTIFIER DIODES (PRESS PACK)

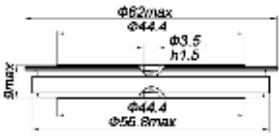
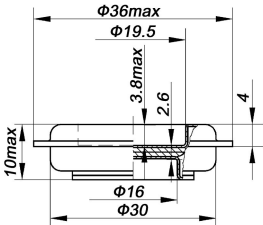
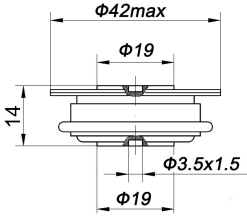
| Type               | $V_{RRM}$ | $I_{F(AV)}$<br>( $T_C = 85^\circ\text{C}$ ) | $I_{FSM}$<br>10 ms | $V_{TO}$ | $r_T$      | $R_{th(j-c)}$      | $T_{VJM}$        | F  | Case |
|--------------------|-----------|---|--------------------|----------|------------|--------------------|------------------|----|------|
|                    | V         | A   | kA                 | V        | m $\Omega$ | $^\circ\text{C/W}$ | $^\circ\text{C}$ | kN |      |
| <b>Up to 1200V</b> |           |   |                    |          |            |                    |                  |    |      |
| B7-200             | 300       | 200( $T_C=150^\circ\text{C}$ )              | 2.9                | 1.18     | 0.800      | 0.060              | 200              | 4  | PD10 |
| D123-630           | 200-1000  | 880   | 9.0                | 0.72     | 0.350      | 0.080              | 190              | 6  | PD21 |
| D133-1600          | 200-1000  | 1810  | 18                 | 0.72     | 0.147      | 0.036              | 175              | 10 | PD32 |
| D143-2000          | 200-1000  | 2400  | 24                 | 0.73     | 0.110      | 0.027              | 175              | 15 | PD42 |
| D153-6300          | 200-400   | 6930  | 50                 | 0.80     | 0.026      | 0.011              | 180              | 22 | PD50 |
| D253-4000          | 200-1000  | 4100  | 65                 | 0.82     | 0.037      | 0.017              | 190              | 26 | PD53 |
| D163-4000          | 200-1000  | 4700  | 55                 | 0.73     | 0.040      | 0.015              | 175              | 33 | PD63 |
| D173-6300          | 200-1000  | 7530  | 75                 | 0.73     | 0.025      | 0.010              | 175              | 45 | PD73 |
| <b>Up to 2200V</b> |           |   |                    |          |            |                    |                  |    |      |
| D123-500           | 1000-2200 | 690   | 7.5                | 0.77     | 0.540      | 0.080              | 180              | 6  | PD21 |
| D133-1250          | 1200-2200 | 1480  | 16                 | 0.77     | 0.250      | 0.036              | 180              | 10 | PD32 |
| D243-1600          | 1200-2200 | 2000  | 22                 | 0.77     | 0.180      | 0.027              | 175              | 15 | PD42 |
| D153-2500          | 1200-2200 | 3440  | 37                 | 0.77     | 0.080      | 0.018              | 175              | 26 | PD53 |
| D163-3200          | 1200-2200 | 4080  | 48                 | 0.77     | 0.060      | 0.016              | 175              | 33 | PD63 |
| D173-5000          | 1200-2200 | 6410  | 65                 | 0.77     | 0.040      | 0.010              | 175              | 45 | PD73 |
| D183-6300          | 1200-2200 | 7460  | 90                 | 0.77     | 0.040      | 0.008              | 175              | 70 | PD83 |
| D193-8000          | 1200-2200 | 10220                                       | 98                 | 0.85     | 0.029      | 0.0065             | 175              | 80 | PD94 |
| <b>Up to 3400V</b> |           |   |                    |          |            |                    |                  |    |      |
| D123-400           | 2400-3200 | 550   | 5.5                | 0.85     | 0.850      | 0.080              | 175              | 6  | PD22 |
| D223-400           | 2400-3200 | 530   | 5.5                | 0.85     | 0.850      | 0.085              | 175              | 6  | PD23 |
| D233-1000          | 2400-3400 | 1240  | 11                 | 0.85     | 0.380      | 0.036              | 175              | 10 | PD32 |
| D433-1000          | 2400-3400 | 1240  | 11                 | 0.85     | 0.380      | 0.036              | 175              | 10 | PD33 |
| D243-1250          | 2400-3200 | 1640  | 18.5               | 0.85     | 0.290      | 0.027              | 175              | 15 | PD42 |
| D153-2000          | 2400-3200 | 2830  | 33                 | 0.85     | 0.130      | 0.018              | 175              | 26 | PD53 |
| D163-2500          | 2400-3200 | 3380  | 42                 | 0.85     | 0.097      | 0.016              | 175              | 33 | PD63 |
| D173-4000          | 2400-3200 | 5290  | 53                 | 0.85     | 0.065      | 0.010              | 175              | 45 | PD73 |
| D183-5000          | 2400-3200 | 5690  | 80                 | 0.85     | 0.080      | 0.008              | 175              | 70 | PD83 |
| D193-6300          | 2400-3200 | 8500  | 90                 | 0.85     | 0.037      | 0.0065             | 175              | 80 | PD94 |
| <b>Up to 4400V</b> |           |   |                    |          |            |                    |                  |    |      |
| D123-320           | 3400-4400 | 410   | 4.2                | 0.87     | 1.370      | 0.080              | 160              | 6  | PD22 |
| D223-320           | 3400-4400 | 390   | 4.2                | 0.87     | 1.370      | 0.085              | 160              | 6  | PD23 |
| D233-800           | 3400-4400 | 920   | 7.5                | 0.90     | 0.599      | 0.036              | 160              | 10 | PD32 |
| D433-800           | 3400-4400 | 920   | 7.5                | 0.90     | 0.599      | 0.036              | 160              | 10 | PD33 |
| D343-1000          | 3400-4400 | 1210  | 13.0               | 0.90     | 0.460      | 0.027              | 160              | 15 | PD42 |
| D153-1600          | 3400-4400 | 2100  | 27.0               | 0.90     | 0.206      | 0.018              | 160              | 26 | PD53 |
| D163-2000          | 3400-4400 | 2520  | 31                 | 0.90     | 0.154      | 0.016              | 160              | 33 | PD63 |
| D173-3200          | 3400-4400 | 3940  | 43                 | 0.90     | 0.103      | 0.010              | 160              | 45 | PD73 |
| D183-4000          | 3400-4200 | 4680  | 60                 | 0.90     | 0.095      | 0.008              | 160              | 70 | PD83 |
| D193-5000          | 3400-4200 | 6330  | 67                 | 0.85     | 0.040      | 0.0065             | 160              | 80 | PD94 |
| <b>Up to 5200V</b> |           |   |                    |          |            |                    |                  |    |      |
| D123-250           | 4400-5200 | 310   | 3.5                | 0.92     | 2.200      | 0.080              | 150              | 6  | PD22 |
| D223-250           | 4400-5200 | 300   | 3.5                | 0.92     | 2.200      | 0.085              | 150              | 6  | PD23 |
| D233-630           | 4400-5200 | 740   | 6.0                | 0.90     | 0.840      | 0.036              | 150              | 10 | PD32 |
| D433-630           | 4400-5200 | 740   | 6.0                | 0.90     | 0.840      | 0.036              | 150              | 10 | PD33 |
| D343-800           | 4400-5200 | 940   | 9.5                | 0.92     | 0.700      | 0.027              | 150              | 15 | PD43 |
| D153-1250          | 4400-5200 | 1650  | 25                 | 0.92     | 0.310      | 0.018              | 150              | 26 | PD53 |
| D163-1600          | 4400-5200 | 1980  | 28                 | 0.92     | 0.230      | 0.016              | 150              | 33 | PD63 |
| D173-2500          | 4400-5200 | 3060  | 37                 | 0.95     | 0.155      | 0.010              | 150              | 45 | PD73 |
| D183-3200          | 4400-5000 | 4000  | 50                 | 0.95     | 0.110      | 0.008              | 150              | 70 | PD83 |
| D193-4000          | 4400-5000 | 4950  | 58                 | 0.94     | 0.088      | 0.0065             | 150              | 80 | PD94 |

## RECTIFIER DIODES (PRESS PACK)

| Type                | $V_{RRM}$  | $I_{F(AV)}$<br>( $T_c = 85\text{ }^\circ\text{C}$ ) | $I_{FSM}$<br>10 ms | $V_{TO}$ | $r_T$      | $R_{th(j-c)}$      | $T_{VJM}$        | F  | Case |
|---------------------|------------|---|--------------------|----------|------------|--------------------|------------------|----|------|
|                     | V          | A   | kA                 | V        | m $\Omega$ | $^\circ\text{C/W}$ | $^\circ\text{C}$ | kN |      |
| <b>Up to 6500V</b>  |            |   |                    |          |            |                    |                  |    |      |
| D123-200            | 5200-6500  | 240   | 3.0                | 1.0      | 3.100      | 0.080              | 140              | 6  | PD22 |
| D223-200            | 5200-6500  | 230   | 3.0                | 1.0      | 3.100      | 0.085              | 140              | 6  | PD23 |
| D333-500            | 5200-6000  | 580   | 5.0                | 1.0      | 1.420      | 0.036              | 150              | 10 | PD32 |
| D433-500            | 5200-6000  | 580   | 5.0                | 1.0      | 1.420      | 0.036              | 150              | 10 | PD33 |
| D243-630            | 5200-6000  | 840   | 8.0                | 1.0      | 0.900      | 0.027              | 150              | 15 | PD43 |
| D153-1000           | 5200-6000  | 1470  | 20.0               | 1.0      | 0.400      | 0.018              | 150              | 26 | PD53 |
| D163-1250           | 5200-6500  | 1490  | 21                 | 1.0      | 0.350      | 0.016              | 140              | 33 | PD63 |
| D173-2000           | 5200-6500  | 2530  | 29                 | 1.0      | 0.250      | 0.010              | 150              | 45 | PD73 |
| D183-2500           | 5200-6500  | 3170  | 40                 | 1.0      | 0.20       | 0.008              | 150              | 70 | PD83 |
| D193-3200           | 5200-6500  | 4180  | 45                 | 1.0      | 0.135      | 0.0065             | 150              | 80 | PD94 |
| <b>Up to 8000V</b>  |            |   |                    |          |            |                    |                  |    |      |
| D543-630            | 6500-8000  | 700   | 11.0               | 1.2      | 0.9        | 0.027              | 140              | 15 | PD44 |
| D453-1000           | 6500-8000  | 1080  | 22.0               | 1.2      | 0.6        | 0.018              | 140              | 26 | PD54 |
| D373-2000           | 6500-8000  | 2000  | 24.0               | 1.2      | 0.3        | 0.010              | 140              | 45 | PD74 |
| <b>Up to 10000V</b> |            |   |                    |          |            |                    |                  |    |      |
| D543-500            | 8000-10000 | 540   | 10.0               | 1.5      | 1.70       | 0.027              | 140              | 15 | PD44 |
| D453-800            | 8000-10000 | 800   | 19.0               | 1.5      | 1.2        | 0.018              | 140              | 26 | PD54 |
| D373-1250           | 8000-10000 | 1400  | 21.0               | 1.5      | 0.7        | 0.010              | 140              | 45 | PD74 |

|  | Case  | a, mm | b, mm | c, mm |
|---|---|-------|-------|-------|
|   | PD22, PD23, PD32, PD33, PD42, PD43, PD44,<br>PD53, PD54, PD63, PD73, PD74, PD83, PD94 | PD22  | 42    | 19    |
| PD23  |   | 42    | 19    | 26    |
| PD32  |   | 54    | 33    | 20    |
| PD33  |   | 54    | 32    | 26    |
| PD42  |   | 60    | 37    | 20    |
| PD43  |   | 60    | 35    | 26    |
| PD44  |   | 60    | 35    | 35    |
| PD53  |   | 75    | 50    | 26    |
| PD54  |   | 75    | 51    | 35    |
| PD63  |   | 87    | 60    | 26    |
| PD73  | 107   | 75    | 26    |       |
| PD74  | 107   | 75    | 35    |       |
| PD83  | 118   | 86    | 26    |       |
| PD94  | 145   | 100   | 26    |       |

|   |  |  |
|---|--|--|
|  <p>PD50 w= 150g</p> |  <p>PD10 w= 34g</p> |  <p>PD21 w= 70g</p> |
|---|--|--|

## RECTIFIER DIODES IN COMPACT CASE

**Features:**

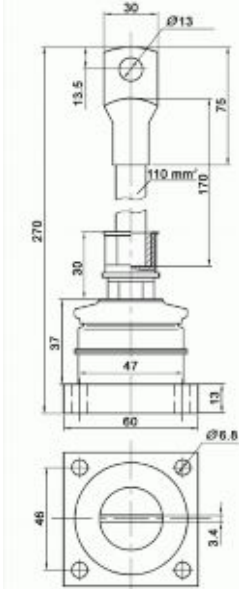
- Compact dimensions by high current values
- Plastic case with screw fastening to heatsink and busbar
- Low internal inductance



**Applications:** Compact high-powered rectifiers for different applications

| Type     | $V_{RRM}$ | $I_{F(AV)}$<br>( $T_C=90^\circ C$ ) | $I_{FSM}$<br>10ms<br>$T_{VJM}$ | $V_{FM}/I_{FM}$ | $V_{TO}$<br>$T_{VJM}$ | $r_T$<br>$T_{VJM}$ | $R_{thjc}$   | $T$        |
|----------|-----------|-------------------------------------|--------------------------------|-----------------|-----------------------|--------------------|--------------|------------|
|          | V         | A                                   | A                              | V/A             | V                     | mW                 | $^\circ C/W$ | $^\circ C$ |
| MPD-63   | 100-1600  | 63                                  | 1200                           | 1.55/200        | 0.95                  | 3.1                | 0.60         | 150        |
| MPD-63X  | 100-1600  | 63                                  | 1200                           | 1.55/200        | 0.95                  | 3.1                | 0.60         | 150        |
| MPD-80   | 100-1600  | 80                                  | 1400                           | 1.60/250        | 0.95                  | 2.5                | 0.50         | 150        |
| MPD-80X  | 100-1600  | 80                                  | 1400                           | 1.60/250        | 0.95                  | 2.5                | 0.50         | 150        |
| MPD-100  | 100-1600  | 100                                 | 1600                           | 1.65/314        | 0.90                  | 2.3                | 0.40         | 150        |
| MPD-100X | 100-1600  | 100                                 | 1600                           | 1.65/314        | 0.90                  | 2.3                | 0.40         | 150        |
| MPD-160  | 100-1600  | 160                                 | 2200                           | 1.70/500        | 0.90                  | 1.6                | 0.24         | 150        |
| MPD-160X | 100-1600  | 160                                 | 2200                           | 1.75/500        | 0.95                  | 1.6                | 0.24         | 150        |

**MPD1**  
w = 35g



### FLANGE DESIGN HIGH VOLTAGE RECTIFIER DIODE D185-500

**Features:**

- Flange design of case
- Hermetic metal-ceramic case
- Reverse voltage up 4000 V
- Available for parallel and serial connections

**Applications:**

Power converters for industry and transport

| Type     | $V_{RRM}$ | $I_{F(AV)}$<br>( $T_C=100^\circ C$ ) | $I_{FSM}$<br>10ms | $V_{FM}/I_{FM}$ | $V_{TO}$ | $r_T$      | $R_{th(j-c)}$ | $T_{VJM}$  | $M_d$     | w   | Case |
|----------|-----------|--------------------------------------|-------------------|-----------------|----------|------------|---------------|------------|-----------|-----|------|
|          | V         | A                                    | kA                | V/A             | V        | m $\Omega$ | $^\circ C/W$  | $^\circ C$ | Nm        | g   |      |
| D185-500 | 3200-4000 | 620                                  | 15                | 1.5/1570        | 0.8      | 0.43       | 0.061         | 160        | 5 $\pm$ 1 | 620 | FD3  |

### ROTOR DIODES

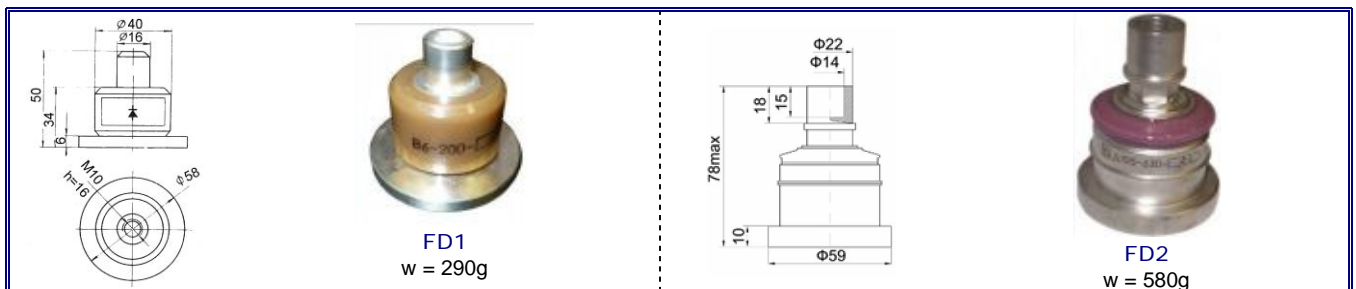
**Features:**

- Flange design. Terminals – round copper flange (base plate) and copper pipe
- Direct and reverse polarity
- Diodes can operate by long time axial centrifugal accelerations up to 4800 g (short time up to 6800 g) in base plate direction and by lateral accelerations up to 500 g

**Applications:**

- Brushless excitation systems of high power electrical machines

| Type                | $V_{RRM}$ | $I_{F(AV)}$<br>( $T_C, ^\circ C$ ) | $I_{FSM}$<br>10 ms | $V_{FM}/I_{FM}$ | $V_{TO}$ | $r_T$      | $R_{th(j-c)}$ | $T_{VJM}$  | F  | Case |
|---------------------|-----------|------------------------------------|--------------------|-----------------|----------|------------|---------------|------------|----|------|
|                     | V         | A                                  | kA                 | V/A             | V        | m $\Omega$ | $^\circ C/W$  | $^\circ C$ | kN |      |
| D105-630, D105-630X | 2000-2800 | 630(100)                           | 15                 | 1.60/1978       | 1.00     | 0.400      | 0.06          | 175        | 16 | FD2  |
| B6-200, B6-200X     | 400-1600  | 200(100)                           | 6                  | 1.35/628        | 0.92     | 0.95       | 0.13          | 140        | 16 | FD1  |



## HIGH VOLTAGE RECTIFIER MODULE CD-2-50

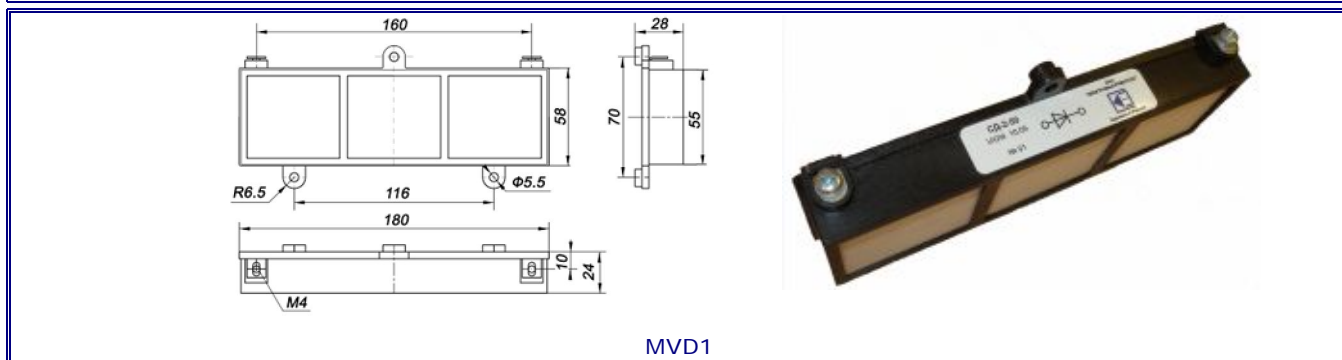
### Features:

- Plastic case
- Heat transfer through ceramic isolation
- Screw montage
- Avalanche characteristics
- Double current by blowing of the case

### Applications:

- High voltage power supplies
- Electrophysical and measuring equipments
- Lasers
- Roentgen equipments
- Protection of AC trolley line

| Type   | $V_{RRM}$ | $I_{RRM}$<br>$T=150^{\circ}C$<br>$V_R=V_{RRM}$ | $I_{F(AV)}$<br>$T_c=100^{\circ}C$ | $I_{FSM}$<br>$T_c=150^{\circ}C$<br>$t_p=10ms$ | $I_R$<br>$T_j=25^{\circ}C$<br>$V_R=V_{RRM}$ | $V_{FM}/I_{FM}$<br>$T_j=25^{\circ}C$ | $R_{th(j-c)}$ | $T_j$       | w   | Case |
|--------|-----------|--|-----------------------------------|---|---|--------------------------------------|---------------|-------------|-----|------|
|        | V         | mA   | A                                 | A   | $\mu A$                                     | V/A                                  | $^{\circ}C/W$ | $^{\circ}C$ | kg  |      |
| CD2-50 | 50000     | 5  | 2                                 | 150   | 5   | 45/6.3                               | 10            | -45...+150  | 0.2 | MVD1 |



MVD1

## HIGH VOLTAGE DIODE STACKS CD-3-125

### Features:

- Single diodes with narrow parameter dispersion are connected in series without additional equalizing elements and mounted on glass-fiber plastic plate
- Parameters are optimum for low frequency and pulse applications
- Maximal possible current can be increased 2-3 times by forced air cooling
- Supplying for high frequency applications are possible

### Applications:

- Electrophysical and measuring equipments
- Lasers
- High power industry electronics
- Roentgen and medical equipments



Outlines 450X90X40 (mm)

| Type    | $V_{RRM}$ | $I_{RRM}$<br>$V_R=V_{RRM}$ |                   | $I_{F(AV)}$<br>$T_c=100^{\circ}C$ | $I_{FSM}$<br>$T_c=150^{\circ}C$<br>$t_p=10ms$ | $V_{FM}/I_{FM}$<br>$T_j=25^{\circ}C$ | $R_{th(j-c)}$ | $T_j$      | w   |
|---------|-----------|----------------------------|-------------------|-----------------------------------|---|--------------------------------------|---------------|------------|-----|
|         |           | $T=150^{\circ}C$           | $T_j=25^{\circ}C$ |                                   |   |                                      |               |            |     |
|         |           | V                          | mA                |                                   |   |                                      |               |            |     |
| CD3-125 | 125000    | 3                          | 20                | 3                                 | 250   | 66/9.5                               | 15            | -45...+150 | 1.5 |

## AVALANCHE DIODES

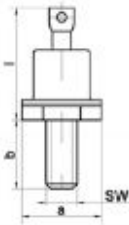

### Features:

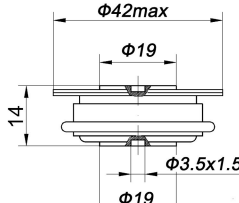

- Hermetic metal-glass and metal-ceramic cases of presspack and stud design
- Guaranteed maximal power dissipation in avalanche breakdown mode
- Operation voltage up to 6000V

### Applications:

- Uncontrollable and half-controlled rectifier bridges
- High power drives for industry and transport
- Power supplies for traction

| Type                | $V_{RRM}$ | $I_{F(AV)}$<br>( $T_C, ^\circ C$ ) | $I_{FSM}$<br>10 ms | $V_{TO}$ | $r_T$      | $P_{RSM}$<br>100 $\mu s$ | $R_{th(j-c)}$ | $T_{VJM}$  | $M_d/ F$ | Case |
|---------------------|-----------|------------------------------------|--------------------|----------|------------|--------------------------|---------------|------------|----------|------|
|                     | V         | A                                  | kA                 | V        | m $\Omega$ | kW                       | $^\circ C/W$  | $^\circ C$ | Nm/ kN   |      |
| <b>Up to 1800V</b>  |           |                                    |                    |          |            |                          |               |            |          |      |
| DA212-10, DA212-10X | 400-1600  | 10(120)                            | 0.25               | 1.03     | 16.20      | 2.5                      | 2.700         | 160        | 0.9-1.1  | SD1  |
| DA212-16, DA212-16X | 400-1600  | 16(120)                            | 0.27               | 0.93     | 9.15       | 2.5                      | 1.900         |            |          |      |
| DA212-25, DA212-25X | 400-1600  | 25(120)                            | 0.34               | 0.83     | 7.35       | 2.5                      | 1.250         |            |          |      |
| DA222-32, DA222-32  | 400-1600  | 32(120)                            | 0.46               | 0.91     | 5.83       | 3.0                      | 0.900         | 160        | 1.4-1.8  | SD2  |
| DA222-40, DA222-40X | 400-1600  | 40(120)                            | 0.55               | 0.82     | 4.38       | 3.0                      | 0.800         |            |          |      |
| DA232-50, DA232-50X | 400-1600  | 50(120)                            | 1.2                | 0.97     | 2.86       | 5.0                      | 0.600         | 160        | 5.0-6.2  | SD3  |
| DA232-63, DA232-63X | 400-1600  | 63(120)                            | 1.3                | 0.87     | 2.51       | 5.0                      | 0.500         |            |          |      |
| DA232-80, DA232-80X | 400-1600  | 80(120)                            | 1.3                | 0.78     | 2.12       | 5.0                      | 0.400         |            |          |      |
| DA161-200           | 400-1800  | 200(115)                           | 7.5                | 0.92     | 0.680      | 16                       | 0.130         | 150        | 20-30    | SD6  |
| DA171-320           | 400-1800  | 320(115)                           | 10                 | 1.00     | 0.500      | 16                       | 0.085         | 150        | 25-35    | SD7  |
| DA123-320           | 400-1600  | 320(113)                           | 5.5                | 0.90     | 0.830      | 16                       | 0.075         | 150        | 6        | PD21 |
| DA133-500           | 400-1600  | 500(123)                           | 12                 | 0.85     | 0.410      | 16                       | 0.040         | 150        | 10       | PD32 |
| <b>Up to 2800V</b>  |           |                                    |                    |          |            |                          |               |            |          |      |
| DA253-2500          | 1600-2800 | 2500(100)                          | 36                 | 0.86     | 0.130      | 20                       | 0.018         | 175        | 22       | PD53 |
| DA173-4000          | 1600-2400 | 3860(100)                          | 50                 | 1.00     | 0.08       | 16                       | 0.011         | 175        | 45       | PD73 |
| <b>Up to 3600V</b>  |           |                                    |                    |          |            |                          |               |            |          |      |
| DA253-1600          | 2200-3600 | 1600(121)                          | 32                 | 0.90     | 0.189      | 20                       | 0.020         | 175        | 22       | PD53 |
| DA173-3200          | 2400-3200 | 3250(100)                          | 45                 | 1.10     | 0.124      | 16                       | 0.011         | 175        | 45       | PD73 |
| <b>Up to 4500V</b>  |           |                                    |                    |          |            |                          |               |            |          |      |
| DA253-1250          | 3200-4500 | 1250(100)                          | 28                 | 1.32     | 0.440      | 20                       | 0.020         | 175        | 22       | PD53 |
| <b>Up to 5200V</b>  |           |                                    |                    |          |            |                          |               |            |          |      |
| DA153-1000          | 3800-5000 | 1250(100)                          | 18                 | 1.30     | 0.54       | 16                       | 0.020         | 175        | 22       | PD53 |
| <b>Up to 6000V</b>  |           |                                    |                    |          |            |                          |               |            |          |      |
| DA153-800           | 4400-6000 | 800(90)                            | 12                 | 1.31     | 0.74       | 16                       | 0.020         | 140        | 22       | PD53 |

|  |   |       |       |      |  |
|--|---|-------|-------|------|--|
|  <p>SD1...SD3</p> |  <p>SD6, SD7</p> |       |       |      |  |
| Case   | a, mm   | b, mm | l, mm | SW   |  |
| SD1  | M5  | 11    | 18    | 11   |  |
| SD2  | M6  | 12    | 26    | 14   |  |
| SD3  | M8  | 14    | 35    | 17   |  |
| SD6  | M20x1.5   | 16    | 200   | 35,5 |  |
| SD7  | M24x1.5   | 19    | 250   | 45,5 |  |

|  |   |       |       |  |  |
|--|---|-------|-------|--|--|
|  <p>PD21 w= 70g</p> |  <p>PD32, PD53, PD73</p> |       |       |  |  |
| Case   | a, mm   | b, mm | c, mm |  |  |
| PD32   | 54  | 33    | 20    |  |  |
| PD53   | 75  | 50    | 26    |  |  |
| PD73   | 107   | 75    | 26    |  |  |

## FAST RECOVERY DIODES

### Features:

- Hermetic metal-glass and metal-ceramic cases of presspack and stud design
- Short reverse recovery times, low reverse recovery charges

### Applications:

- Invertors, choppers
- DC drives
- Uninterruptible supplies

| Type                  | $V_{RRM}$ | $I_{F(AV)}$<br>( $T_C, ^\circ C$ ) | $I_{FSM}$<br>10 ms | $V_{TO}$ | $r_T$      | $t_{rr}$                            | $R_{th(j-c)}$ | $T_{VJM}$  | $M_d$   | Case |
|-----------------------|-----------|------------------------------------|--------------------|----------|------------|-------------------------------------|---------------|------------|---------|------|
|                       | V         | A                                  | kA                 | V        | m $\Omega$ | $\mu s$                             | $^\circ C/W$  | $^\circ C$ | Nm      |      |
| <b>Up to 1600V</b>    |           |                                    |                    |          |            |                                     |               |            |         |      |
| DF212-10, DF212-10X   | 400-1400  | 10(100)                            | 0.18               | 1.20     | 32         | 0.50 – 1.00                         | 2.50          | 150        | 0.9-1.1 | SD1  |
| DF212-16, DF212-16X   | 400-1400  | 16(100)                            | 0.25               | 1.20     | 20         | 0.50 – 1.00                         | 1.60          |            |         |      |
| DF212-20, DF212-20X   | 400-1400  | 20(100)                            | 0.31               | 1.20     | 16         | 0.63 – 1.00                         | 1.20          |            |         |      |
| DF222-25, DF222-25X   | 400-1400  | 25(100)                            | 0.40               | 1.20     | 13         | 0.50 – 1.00                         | 1.00          | 150        | 1.4-1.8 | SD2  |
| DF222-32, DF222-32X   | 400-1400  | 32(100)                            | 0.50               | 1.20     | 10         | 0.63 – 1.00                         | 0.80          |            |         |      |
| DF232-40, DF232-40X   | 400-1400  | 40(100)                            | 0.60               | 1.20     | 8          | 0.50 – 1.00                         | 0.60          | 150        | 5-6.2   | SD3  |
| DF232-50, DF232-50X   | 400-1400  | 50(100)                            | 0.75               | 1.20     | 6          | 0.63 – 1.00                         | 0.50          |            |         |      |
| DF232-63, DF232-63X   | 400-1400  | 63(100)                            | 0.95               | 1.20     | 5          | 0.63 – 1.00                         | 0.40          |            |         |      |
| DF141-80              | 400-1600  | 80(100)                            | 2.5                | 1.10     | 4.4        | 1.6                                 | 0.45          | 150        | 6-10    | SD4  |
| DF141-80X             | 400-1600  | 80(95)                             | 2.2                | 1.10     | 4.4        | 50 <sup>1)</sup> ; 65 <sup>2)</sup> | 0.45          |            |         |      |
| DF151-125             | 400-1600  | 125(100)                           | 4.0                | 1.15     | 2.2        | 2.0                                 | 0.25          | 150        | 10-20   | SD5  |
| DF151-125X            | 400-1600  | 125(95)                            | 3.5                | 1.15     | 2.2        | 80 <sup>1)</sup> ; 80 <sup>2)</sup> | 0.25          | 150        |         |      |
| DF351-160, DF351-160X | 600-1400  | 160(103)                           | 3.5                | 1.40     | 1.56       | 3.2;4.0                             | 0.25          | 170        |         |      |
| DF351-200, DF351-200X | 600-1400  | 200(103)                           | 4.3                | 1.05     | 1.1        | 3.2;4.0                             | 0.25          | 170        | 170     | SD6  |
| DF361-250, DF361-250X | 600-1400  | 250(103)                           | 4.5                | 1.20     | 1.6        | 3.2;4.0;5.0                         | 0.15          |            |         |      |
| DF361-320, DF361-320X | 600-1400  | 320(103)                           | 5.3                | 0.80     | 1.20       | 3.2,4.0,5.0                         | 0.15          |            |         |      |
| <b>Up to 2600V</b>    |           |                                    |                    |          |            |                                     |               |            |         |      |
| DF141-63              | 1600-2600 | 63(100)                            | 2.0                | 1.20     | 5          | 1.0; 2.0                            | 0.45          | 150        | 6-10    | SD4  |
| DF141-63X             | 1600-2500 | 56(100)                            | 2.2                | 1.20     | 5.0        | 80 <sup>1)</sup> ; 80 <sup>2)</sup> | 0.45          |            |         |      |

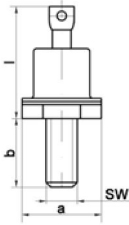
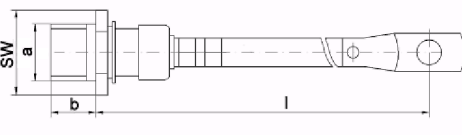
| Type               | $V_{RRM}$ | $I_{F(AV)}$<br>( $T_C, ^\circ C$ ) | $I_{FSM}$<br>10 ms | $V_{TO}$ | $r_T$      | $t_{rr}$                               | $R_{th(j-c)}$ | $T_{VJM}$  | F   | Case   |
|--------------------|-----------|------------------------------------|--------------------|----------|------------|--|---------------|------------|-----|--------|
|                    | V         | A                                  | kA                 | V        | m $\Omega$ | $\mu s$                                | $^\circ C/W$  | $^\circ C$ | kN  |        |
| <b>Up to 1800V</b> |           |                                    |                    |          |            |  |               |            |     |        |
| DF343-800          | 600-1800  | 800(100)                           | 12.5               | 1.30     | 0.60       | 4.0;5.0;6.3;8.0                        | 0.035         | 175        | 16  | PD42   |
| DF343-1000         | 600-1800  | 1000(100)                          | 14.5               | 1.20     | 0.35       | 5.0;6.3;8.0                            | 0.035         | 175        | 16  | PD42   |
| <b>Up to 2600V</b> |           |                                    |                    |          |            |  |               |            |     |        |
| DF323-250          | 1600-2400 | 250(100)                           | 4.5                | 1.10     | 0.96       | 4.0                                    | 0.08          | 150        | 4.5 | PD21   |
| DF423-250          | 1600-2600 | 250(95)                            | 4.0                | 1.10     | 0.96       | 300 <sup>1)</sup> ; 250 <sup>2)</sup>  | 0.08          | 150        | 4.5 | PD21   |
| DF333-400          | 1600-2400 | 400(100)                           | 6.5                | 1.20     | 0.88       | 4.0                                    | 0.04          | 150        | 4.5 | PD32   |
| DF433-400          | 1600-2600 | 400(95)                            | 6.5                | 1.20     | 0.88       | 350 <sup>1)</sup> ; 160 <sup>2)</sup>  | 0.04          | 150        | 4.5 | PD32   |
| DF443-500          | 1600-2500 | 500(120)                           | 12.0               | 0.95     | 0.50       | 550 <sup>1)</sup> ; 160 <sup>2)</sup>  | 0.035         | 150        | 16  | PD42   |
| DF453-1000         | 1600-2500 | 1000(100)                          | 25.0               | 1.10     | 0.50       | 650 <sup>1)</sup> ; 600 <sup>2)</sup>  | 0.020         | 150        | 24  | PD53   |
| DF273-2000         | 1000-2400 | 2000(113)                          | 48.0               | 1.05     | 0.127      | 3.2;4.0;5.0;6.3; 1000 <sup>1)</sup>    | 0.011         | 150        | 45  | PD73   |
| <b>Up to 3400V</b> |           |                                    |                    |          |            |  |               |            |     |        |
| DF343-500          | 3000-3600 | 500(100)                           | 10.5               | 1.55     | 0.90       | 5.0                                    | 0.035         | 150        | 16  | PD42   |
| <b>Up to 4600V</b> |           |                                    |                    |          |            |  |               |            |     |        |
| DF323-200          | 3000-4600 | 200(93)                            | 3.0                | 1.40     | 2.70       | 5.0                                    | 0.08          | 140        | 4.5 | PD22   |
| DF423-200          | 3000-4600 | 200(85)                            | 2.7                | 1.40     | 2.70       | 450 <sup>1)</sup> ; 160 <sup>2)</sup>  | 0.08          | 140        | 4.5 | PD22   |
| DF443-320          | 3000-4500 | 320(119)                           | 5.0                | 1.35     | 0.60       | 1000 <sup>1)</sup> ; 250 <sup>2)</sup> | 0.035         | 140        | 16  | PD42   |
| DF353-800          | 3000-4600 | 800(93)                            | 9.5                | 1.40     | 0.84       | 6.3                                    | 0.020         | 140        | 24  | PD53   |
| DF453-800          | 3000-4600 | 800(90)                            | 16.0               | 1.40     | 0.84       | 1000 <sup>1)</sup> ; 700 <sup>2)</sup> | 0.020         | 140        | 24  | PD53   |
| DF173-1600         | 3000-4500 | 1700(85)                           | 32.0               | 1.4      | 0.305      | 2340 <sup>1)</sup> ; 430 <sup>2)</sup> | 0.012         | 140        | 45  | PD73-1 |
| <b>Up to 6000V</b> |           |                                    |                    |          |            |  |               |            |     |        |
| DF443-250          | 4000-6000 | 250(120)                           | 4.0                | 1.60     | 0.60       | 1500 <sup>1)</sup> ; 280 <sup>2)</sup> | 0.035         | 140        | 16  | PD42   |

<sup>1)</sup>  $Q_{rr}, \mu C$

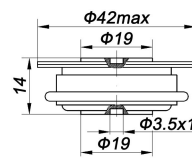
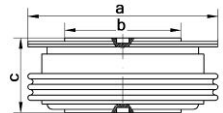
<sup>2)</sup>  $I_{RM}, A$



## FAST RECOVERY DIODES

|  |  | Case | a, mm   | b, mm | l, mm | SW   |
|--|--|------|---------|-------|-------|------|
| <br>SD1...SD3 | <br>SD4...SD7 | SD1  | M5      | 11    | 18    | 11   |
|  |  | SD2  | M6      | 12    | 26    | 14   |
|  |  | SD3  | M8      | 14    | 35    | 17   |
|  |  | SD4  | M10     | 13    | 150   | 25   |
|  |  | SD5  | M12     | 18    | 150   | 30,5 |
|  |  | SD6  | M20x1.5 | 16    | 200   | 35,5 |

|  |   | Case | a, mm | b, mm | c, mm |
|--|---|------|-------|-------|-------|
| <br>PD21 w= 70g | <br>PD32, PD42, PD53, PD73 | PD32 | 54    | 33    | 20    |
|  |   | PD42 | 60    | 37    | 20    |
|  |   | PD53 | 75    | 50    | 26    |
|  |   | PD73 | 107   | 75    | 26    |

## FAST DIODES IN COMPACT CASE

### Features:

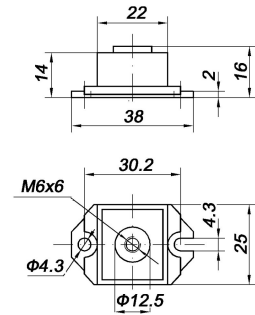
- Very low dimensions and weight by high loading current values
- Solid plastic case with screw fastening to heat sink and bus-bar
- Very low internal inductivity



### Applications:

- Compact high power rectifiers for various applications

| Type      | $V_{RRM}$ | $I_{F(AV)}$<br>( $T_C=90^\circ C$ ) | $I_{FSM}$<br>10 ms<br>$T_{VJM}$ | $V_{FM}/I_{FM}$ | $V_{TO}$<br>$T_{VJM}$ | $r_T$<br>$T_{VJM}$ | $R_{thjc}$   | $t_{rr}$ | $T_{VJM}$  |
|-----------|-----------|-------------------------------------|---------------------------------|-----------------|-----------------------|--------------------|--------------|----------|------------|
|           | V         | A                                   | A                               | V/A             | V                     | mW                 | $^\circ C/W$ | $\mu s$  | $^\circ C$ |
| MPDF-50   | 100-1400  | 50                                  | 1500                            | 2.1/150         | 1.2                   | 6.0                | 0.60         | 0.5-1.0  | 150        |
| MPDF-50X  | 100-1400  | 50                                  | 1500                            | 2.1/150         | 1.2                   | 6.0                | 0.60         | 0.5-1.0  | 150        |
| MPDF-63   | 100-1400  | 63                                  | 1700                            | 2.1/200         | 1.1                   | 5.0                | 0.45         | 0.5-1.0  | 150        |
| MPDF-63X  | 100-1400  | 63                                  | 1700                            | 2.1/200         | 1.1                   | 5.0                | 0.45         | 0.5-1.0  | 150        |
| MPDF-80   | 100-1400  | 80                                  | 1800                            | 2.1/250         | 1.1                   | 4.0                | 0.37         | 0.63-1   | 150        |
| MPDF-80X  | 100-1400  | 80                                  | 1800                            | 2.1/250         | 1.1                   | 4.0                | 0.37         | 0.63-1   | 150        |
| MPDF-100  | 100-1400  | 100                                 | 2000                            | 2.1/314         | 1.1                   | 3.5                | 0.24         | 0.63-1   | 150        |
| MPDF-100X | 100-1400  | 100                                 | 2000                            | 2.1/314         | 1.1                   | 3.5                | 0.24         | 0.63-1   | 150        |



MPDF1 w=35g

## SILICON SURGE VOLTAGE SUPPRESSORS

### Features:

- Diffused p-n-p structure
- Symmetric avalanche blocking characteristics

### Applications:

- Effective protection against repetitive and non-repetitive overvoltages
- Suitable for thyristor protection

| Type      | $V_H$<br>V | $I_{DRM}/I_{RRM}$<br>mA | $V_{BR}$<br>V | $A_H$<br>J | $\beta$<br>%/ $^\circ C$ | $R_{th(j-c)}$<br>$^\circ C/W$ | $T_{VJM}$<br>$^\circ C$ | $M_d$<br>Nm | F<br>kN | Case |
|-----------|------------|-------------------------|---------------|------------|--------------------------|-------------------------------|-------------------------|-------------|---------|------|
| OHC261-10 | 600-1800   | 5                       | $V_H+100$     | 10.0       | 0.15                     | 0.120                         | 125                     | 20-30       | -       | SD6  |
| OHC223-15 | 1800-3400  | 10                      | $V_H+200$     | 15.0       | 0.15                     | 0.080                         | 125                     | -           | 5       | PD22 |
| OHC333-15 | 400-2800   | 10                      | $V_H+200$     | 15.0       | 0.15                     | 0.036                         | 125                     | -           | 10      | PD32 |
| OHC343-15 | 800-3200   | 20                      | $V_H+200$     | 15.0       | 0.15                     | 0.027                         | 125                     | -           | 15      | PD42 |
| OHC353-15 | 1600-4400  | 20                      | $V_H+200$     | 15.0       | 0.15                     | 0.018                         | 125                     | -           | 26      | PD53 |

# OUTLINES

