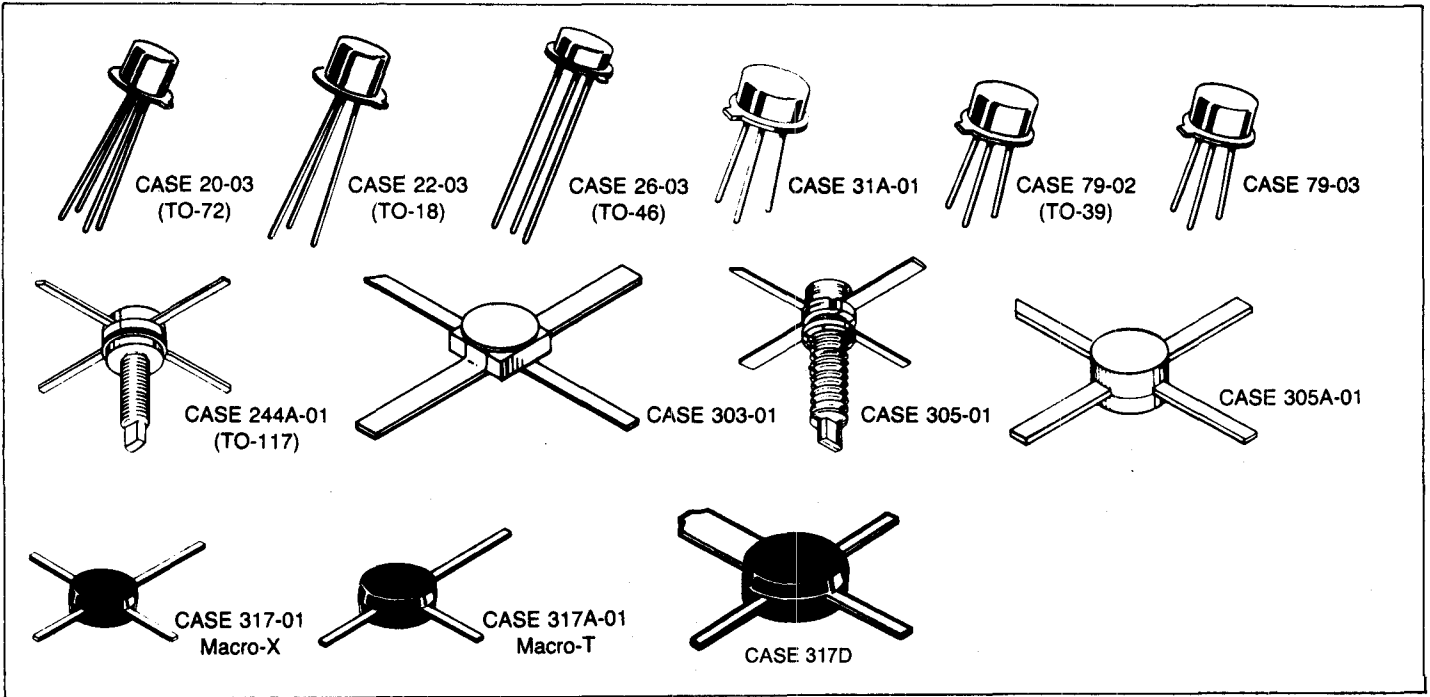


RF Small-Signal Transistors

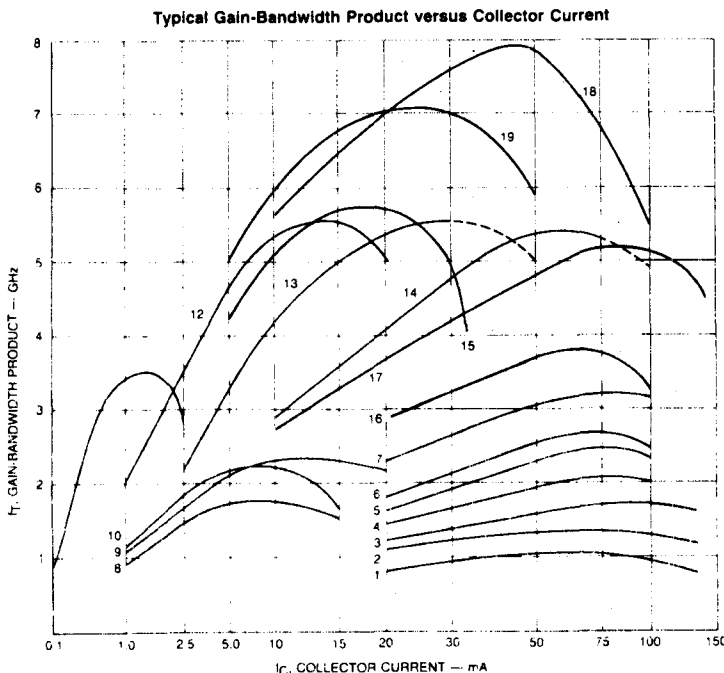
3



Motorola's small-signal, low power RF transistor product range includes transistors with gain-bandwidths of 1.0 GHz to 8.0 GHz operating at currents of 0.25 mA to over 140 mA.

These devices are available in a wide variety of package types; metal can, plastic Macro-X and Macro-T, hermetic ceramic and microminiature. Most of these transistors are fully

characterized with y or s parameters; and in addition, there are non-saturated switching characteristics, low power driver specifications, and noise figure limits. QPL types with JAN, JTX and JTXV processing levels are available as well as Hi Rel processing to meet unique customer requirements.



RF Small-Signal Transistors

Motorola small-signal and medium power RF transistors with gain-bandwidth products from 1.0 GHz to 8.0 GHz operate with currents from 0.25 mA to over 140 mA. The following chart, combined with the tables of package options, enables the circuit designer to select the optimum device from Motorola's wide range of transistor/package combinations.

- | | |
|--|-----------------------------------|
| 1 2N3866, 2N3866A | 10 2N4957, 2N4958, 2N4959, PNP |
| 2 2N5160, MM4018, PNP | 12 2N6603, BFR90, MRF901, MRF904 |
| 3 2N3948, 2N4427, MRF207 | 13 2N6604, BFR91, MRF911, MRF914 |
| 4 2N5109, 2N5943 | 14 BFR96, MRF961, MRF962, MRF965 |
| 5 2N5583, PNP | 15 BFW92A |
| 6 2N5836, 2N5837 | 16 MRF559 |
| 7 MRF511, MRF517, MRF525 | 17 MRF580, MRF581, MRF586, MRF587 |
| 8 2N2857, 2N3939, 2N5179, MRF501, MRF502 | 18 MRF571, MRF572 |
| 9 BFX89, BFY90 | 19 MRF536, MRF534, MM4049, PNP |

RF SMALL-SIGNAL TRANSISTORS (continued)

CATV, MATV, and Class A Linear Transistors

The devices listed below are excellent for Class A linear CATV/MATV applications and are listed according to increasing gain-bandwidth (f_T). More information concerning the device for your specific linear design needs can be obtained through your local Motorola Sales Office or Motorola distributor.

3

| Device Type | Nominal Test Conditions V_{CE}/I_C Volts/mA | f_T MHz Min | Noise Figure | Distortion Specifications | | | | Package |
|-------------|---|---------------------|---------------------|---------------------------|---------------------|--------------------------|-------------------------|---------|
| | | | Max/Freq. dB/MHz | 2nd Order IMD | 3rd Order IMD | 12 Ch. Cross- Mod. | Output Level dBmV | |
| MRF501 | 6/5 | 600 | 4.5*/200 | | | | | TO-72 |
| MRF502 | 6/5 | 800 | 4.0*/200 | | | | | TO-72 |
| 2N5179 | 6/5 | 900 | 4.5/200 | | | | | TO-72 |
| BFY90 | 5/2 | 1000 | 5.0/500 | | | | | TO-72 |
| BFX89 | 5/25 | 1200 | 6.5/500 | | | | | TO-72 |
| 2N5109 | 15/50 | 1200 | 3.0*/200 | | | | | TO-39 |
| 2N5943 | 15/50 | 1200 | 3.4/200 | -50 | | -42 | +50 | TO-39 |
| MRF511 | 20/80 | 1500 | 7.3*/200 | -50 | -65 | -57 | +50 | 244A-01 |
| MRF517 | 15/60 | 2200 | 7.5/300 | -60 | -72 | -57 | +45 | TO-39 |
| BFW92A | 5/2 | 4500* | 3.0*/500 | | | | | 317A-01 |
| MRF586 | 14/70 | 4500* | 3.0/500 | -50 | -72 | | +50 | TO-39 |
| BFR90 | 10/14 | 5000* | 2.4*/500 | | | | | 317A-01 |
| BFR91 | 5/35 | 5000* | 1.9*/500 | | | | | 317A-01 |
| BFR96 | 10/50 | 5000* | 3.0*/500 | | | | | 317A-01 |
| MRF961 | 10/50 | 5000* | 2.0*/500 | | | | | 317-01 |
| MRF962 | 10/50 | 5000* | 2.0*/500 | | | | | 303-01 |
| MRF965 | 10/50 | 5000* | 2.0*/500 | | | | | TO-46 |
| MRF581 | 10/75 | 5000* | 3.0/500 | | -65 | | +50 | 317-01 |
| MRF587 | 14/70 | 5500* | 3.0/500 | -52 | -72 | | +50 | 244A-01 |

*Typ

High-Speed Switches

The transistors listed below are for use as high-frequency current-mode switches. They are also suitable for RF amplifier and oscillator applications. The devices are listed in ascending order of collector current.

| Device Type | Test Conditions I_C/V_{CE} mA/Volts | f_T MHz Min | $r_b' C_C$ Max | Package |
|-------------|---|---------------------|-------------------|---------|
| 2N3959 | 10/10 | 1300 | 25 | TO-18 |
| 2N3960 | 10/10 | 1600 | 40 | TO-18 |
| 2N5835 | 10/6.0 | 2500 | 5.0** | TO-72 |
| MM4049* | 20/5.0 | 4000 | 15 | TO-72 |
| MRF914 | 20/10 | 4500** | — | TO-72 |
| 2N5943 | 50/15 | 1200 | 5.5** | TO-39 |
| 2N5583* | 50/10 | 1000 | 8.0** | TO-39 |
| 2N5836 | 50/6.0 | 2000 | 6.0** | TO-46 |
| 2N5837 | 100/3.0 | 1700 | 6.0** | TO-46 |

*PNP **Typ