



ME 4101 ME 4102 ME 4103

SMALL SIGNAL HIGH GAIN LOW NOISE

NPN SILICON PLANAR EPITAXIAL TRANSISTOR

MICRO ELECTRONICS

FEATURES

- High Gain h_{FE} 100-600 @1mA
- Excellent Linearity From 10 μ A to 10mA
- High Breakdown Voltage BV_{CBO} ... 60Vmin @0.1mA
- Low Saturation Voltage $V_{CE(sat)}$... 0.1V $_{typ}$ @10mA
- Low Noise Pre-amplifier
- Audio Frequency Amplifier
- Low Level General Applications
- Complementary to ME0411 ME0412 ME0413

THERMAL CHARACTERISTICS

| | |
|-------------------------------|--------------|
| R $_{th}$ (j-amb) in free air | 0.5 deg C/mW |
| R $_{th}$ (j-case) | 0.2 deg C/mW |

ABSOLUTE MAXIMUM RATINGS

| | | | |
|---------------------------------|-------|---|-----------------|
| Total Dissipation 25°C free air | 200mW | Operating Collector Junction Temperature | 150°C |
| Total Dissipation 65°C case | 425mW | Storage Temperature Range | -55°C to +150°C |
| Total Dissipation 25°C case | 625mW | Soldering Temperature (10 seconds time limit) | 260°C |

ELECTRICAL CHARACTERISTICS AT 25°C

| CHARACTERISTICS | SYMBOL | ME 4101 | | ME 4102 | | ME 4103 | | UNITS | TEST CONDITIONS |
|--------------------------------------|----------------|---------|------|---------|------|---------|------|-------|---|
| | | MIN. | MAX. | MIN. | MAX. | MIN. | MAX. | | |
| Maximum Collector Current | I $_C$ MAX | | 100 | | 100 | | 100 | mA | |
| Collector-Base Breakdown Voltage | BV $_{CBO}$ | 60 | | 60 | | 50 | | V | I $_C$ = 0.01mA I $_E$ = 0 |
| Collector-Emitter Breakdown Voltage | LV $_{CEO}$ | 45 | | 45 | | 40 | | V | I $_C$ = 10mA I $_B$ = 0 |
| Emitter-Base Breakdown Voltage | BV $_{EBO}$ | 5 | | 5 | | 5 | | V | I $_C$ = 0 I $_E$ = 0.01mA |
| Collector-Base Cutoff Current | I $_{CBO}$ | | 10 | | 10 | | | nA | I $_E$ = 0 V $_{CB}$ = 50V |
| Collector-Base Cutoff Current | I $_{CBO}$ | | | | | | 10 | nA | I $_E$ = 0 V $_{CB}$ = 40V |
| Emitter-Base Cutoff Current | I $_{EBO}$ | | 10 | | 10 | | 10 | nA | I $_C$ = 0 V $_{EB}$ = 3V |
| Collector-Emitter Saturation Voltage | V $_{CE(sat)}$ | | 0.25 | | 0.25 | | 0.25 | V | I $_C$ = 10mA I $_B$ = 0.5mA |
| Base-Emitter Saturation Voltage | V $_{BE(sat)}$ | | 0.8 | | 0.8 | | 0.8 | V | I $_C$ = 10mA I $_B$ = 0.5mA |
| Forward Current Transfer Ratio | h $_{FE}$ | 40 | | 100 | | 40 | | | I $_C$ = 0.01mA V $_{CE}$ = 5V |
| Forward Current Transfer Ratio | h $_{FE}$ | 70 | 300 | 200 | 600 | 100 | 600 | | I $_C$ = 1mA V $_{CE}$ = 5V |
| High Frequency Current Gain | h $_{fe}$ | 7.5 | | 7.5 | | 7.5 | | | I $_C$ = 10mA f = 20MHz V $_{CE}$ = 5V |
| Input Capacitance | C $_{ib}$ | | 4.5 | | 4.5 | | 4.5 | pF | I $_C$ = 0 f = 1MHz V $_{EB}$ = 2V |
| Output Capacitance | C $_{ob}$ | | 4 | | 4 | | 4 | pF | I $_E$ = 0 f = 1MHz V $_{CB}$ = 10V |
| Noise Figure | N.F. | | 6 | | 6 | | 6 | dB | R $_g$ = 2Kohm V $_{CE}$ = 5V I $_C$ = 0.2mA BW = 200Hz f = 1KHz |

TO-92F



ME 4102
ME 4103

MICRO ELECTRONICS LTD.

38 HUNG TO ROAD, KWUN TONG, HONG KONG. TELEX 43510
KWUN TONG P. O. BOX 69477 CABLE ADDRESS "MICROTRON"
TELEPHONE:- 3-430181-6, 3-893363, 3-892423, 3-898221

FAX: 3-410321

9:74 2.1.97

NPN SILICON PLANAR EPITAXIAL TRANSISTOR

TYPICAL ELECTRICAL CHARACTERISTICS

ME 4101 • ME 4102 • ME 4103

