



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

APPLICATIONS

- Low Noise Pre-amplifier
- Audio Frequency Amplifier
- Low Level General Applications
- Complementary to ME0411 ME0412 ME0413

MECHANICAL OUTLINE

TO-92F



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
 Total Dissipation 65°C case 425mW
 Total Dissipation 25°C case 625mW
 Operating Collector Junction Temperature 150°C
 Storage Temperature Range -55°C to +150°C
 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			$I_C = 10mA$ $V_{CE} = 5V$ $f = 20MHz$
Input Capacitance	C_{ib}		4.5		4.5		4.5	pF	$I_C = 0$ $V_{EB} = 2V$ $f = 1MHz$
Output Capacitance	C_{ob}		4		4		4	pF	$I_E = 0$ $V_{CB} = 10V$ $f = 1MHz$
Noise Figure	N.F.		6		6		6	dB	$R_g = 2Kohm$ $V_{CE} = 5V$ $I_C = 0.2mA$ $BW = 200Hz$ $f = 1KHz$

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ME 4102
ME 4103

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NPN SILICON PLANAR EPITAXIAL TRANSISTOR

TYPICAL ELECTRICAL CHARACTERISTICS

ME 4101 • ME 4102 • ME 4103

