



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 $\mu$ 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	$R_g = 2Kohm$ $V_{CE} = 5V$ $I_C = 0.2mA$ $BW = 200Hz$ $f = 1KHz$

**MICRO ELECTRONICS LTD.**

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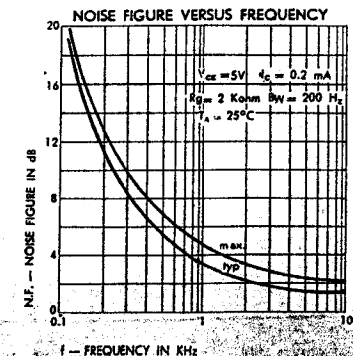
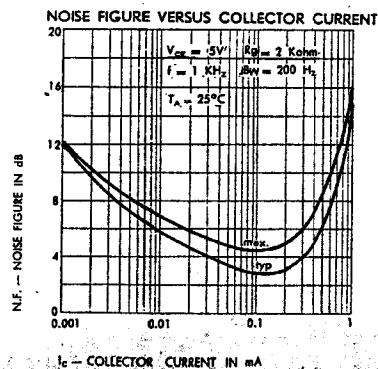
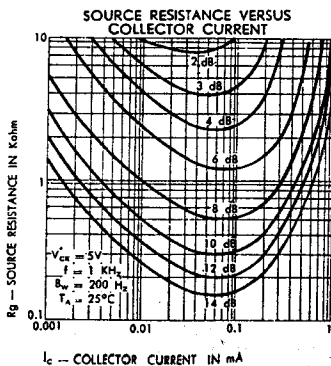
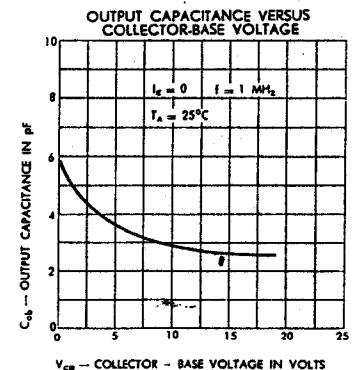
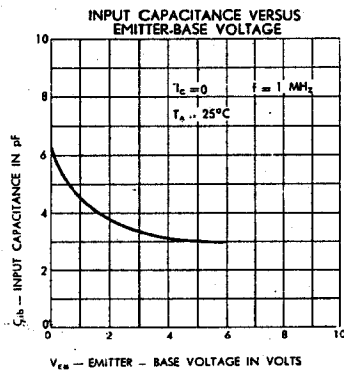
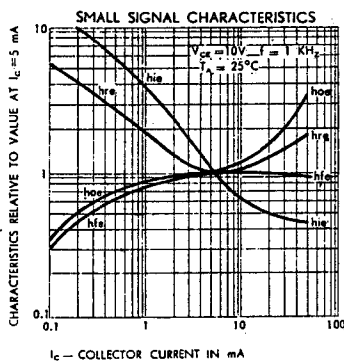
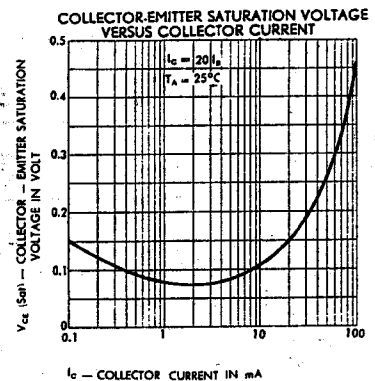
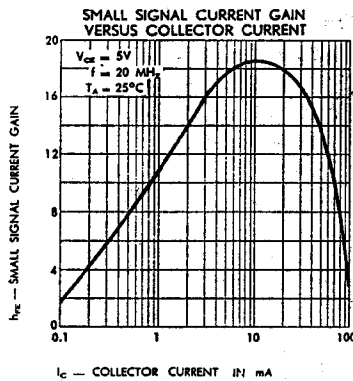
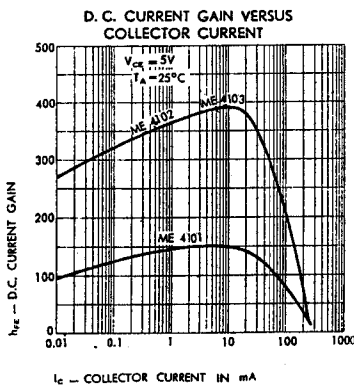
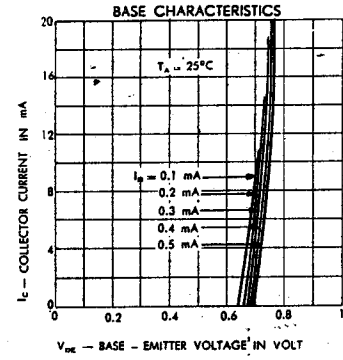
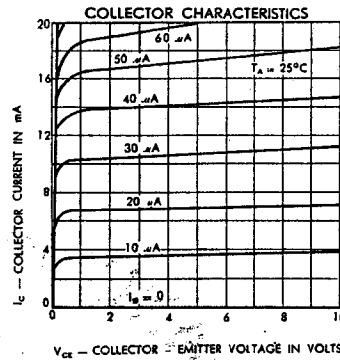
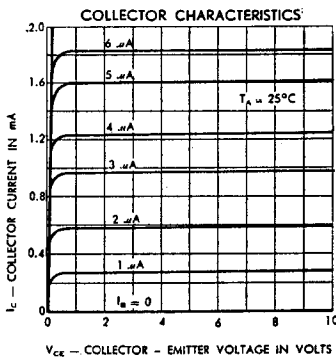
ME 4102  
ME 4103

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# NPN SILICON PLANAR EPITAXIAL TRANSISTOR

## TYPICAL ELECTRICAL CHARACTERISTICS

ME 4101 • ME 4102 • ME 4103



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