

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V _{CEO}	30	V _{dc}
Collector-Base Voltage	V _{CBO}	30	V _{dc}
Emitter-Base Voltage	V _{EBO}	4.0	V _{dc}
Collector Current — Continuous	I _C	200	mAdc
Total Device Dissipation @ T _A = 25°C Derate above 25°C	P _D	350 2.8	mW mW/°C
Total Device Dissipation @ T _C = 25°C Derate above 25°C	P _D	1.0 8.0	Watt mW/°C
Operating and Storage Junction Temperature Range	T _J , T _{stg}	-55 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board,* T _A = 25°C Derate above 25°C	P _D	225 1.8	mW mW/°C
Thermal Resistance Junction to Ambient	R _{θJA}	556	°C/W
Total Device Dissipation Alumina Substrate,** T _A = 25°C Derate above 25°C	P _D	300 2.4	mW mW/°C
Thermal Resistance Junction to Ambient	R _{θJA}	417	°C/W
Junction and Storage Temperature	T _J , T _{stg}	-55 to +150	°C

*FR-5 = 1.0 x 0.75 x 0.062 in.

**Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

DEVICE MARKING

MMBT4125L = ZD

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage(1) (I _C = 1.0 mAdc, I _E = 0)	V _{(BR)CEO}	30	—	V _{dc}
Collector-Base Breakdown Voltage (I _C = 10 μAdc, I _E = 0)	V _{(BR)CBO}	30	—	V _{dc}
Emitter-Base Breakdown Voltage (I _E = 10 μAdc, I _C = 0)	V _{(BR)EBO}	4.0	—	V _{dc}
Collector Cutoff Current (V _{CB} = 20 Vdc, I _E = 0)	I _{CBO}	—	50	nAdc
Emitter Cutoff Current (V _{BE} = 3.0 Vdc, I _C = 0)	I _{EBO}	—	50	nAdc
ON CHARACTERISTICS				
DC Current Gain(1) (I _C = 2.0 mAdc, V _{CE} = 1.0 Vdc) (I _C = 50 mAdc, V _{CE} = 1.0 Vdc)	h _{FE}	50 25	150 —	—
Collector-Emitter Saturation Voltage(1) (I _C = 50 mAdc, I _B = 5.0 mAdc)	V _{CE(sat)}	—	0.4	V _{dc}
Base-Emitter Saturation Voltage(1) (I _C = 50 mAdc, I _B = 5.0 mAdc)	V _{BE(sat)}	—	0.95	V _{dc}
SMALL-SIGNAL CHARACTERISTICS				
Current-Gain — Bandwidth Product (I _C = 10 mAdc, V _{CE} = 20 Vdc, f = 100 MHz)	f _T	200	—	MHz
Input Capacitance (V _{BE} = 0.5 Vdc, I _C = 0, f = 100 kHz)	C _{iBo}	—	10	pF
Collector-Base Capacitance (V _{CB} = 5.0 Vdc, I _E = 0, f = 100 kHz)	C _{cb}	—	4.5	pF
Small-Signal Current Gain (I _C = 2.0 mAdc, V _{CE} = 10 Vdc, f = 1.0 kHz)	h _{fe}	50	200	—
Current Gain — High Frequency (I _C = 10 mAdc, V _{CE} = 20 Vdc, f = 100 MHz)	h _{fe}	2.0	—	—
Noise Figure (I _C = 100 μAdc, V _{CE} = 5.0 Vdc, R _S = 1.0 kohm, Noise Bandwidth = 10 Hz to 15.7 kHz)	NF	—	5.0	dB

(1) Pulse Test; Pulse Width = 300 μs, Duty Cycle = 2.0%.

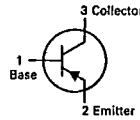
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MOTOROLA SC XSTRS/R F

MMBT4125L

CASE 318-03, STYLE 6
SOT-23 (TO-236AB)

T-27-09



GENERAL PURPOSE TRANSISTOR

PNP SILICON

Refer to 2N4125 for graphs.

MOTOROLA SMALL-SIGNAL TRANSISTORS, FETs AND DIODES

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