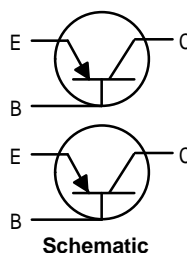


Preliminary Data Sheet
Plastic Power Transistors

SO-8 for Surface Mount Applications

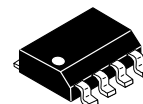
- Collector - Emitter Sustaining Voltage — $V_{CE(sus)}$
= 30 Vdc (Min) @ $I_C = 10$ mAdc
- High DC Current Gain — h_{FE}
= 140 (Min) @ $I_C = 1.2$ Adc
= 125 (Min) @ $I_C = 3.0$ Adc
- Low Collector - Emitter Saturation Voltage — $V_{CE(sat)}$
= 0.24 Vdc (Max) @ $I_C = 1.2$ Adc
= 0.60 Vdc (Max) @ $I_C = 5.0$ Adc
- Miniature SO-8 Surface Mount Package – Saves Board Space



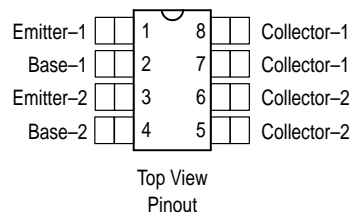
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Motorola Preferred Device

**DUAL BIPOLAR
POWER TRANSISTOR
PNP SILICON
30 VOLTS
3 AMPERES**



**CASE 751-05, Style 16
(SO-8)**



MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
Collector-Base Voltage	V_{CB}	45	Vdc
Collector-Emitter Voltage	V_{CEO}	30	Vdc
Emitter-Base Voltage	V_{EB}	± 8.0	Vdc
Collector Current — Continuous — Peak	I_C	3.0 5.0	Adc
Base Current — Continuous	I_B	1.0	Adc
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance – Junction to Ambient ⁽¹⁾	$R_{\theta JC}$	62.5	$^\circ\text{C/W}$
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ ⁽¹⁾ Derate above 25°C	P_D	2.0 16	Watts $\text{mW}/^\circ\text{C}$
Maximum Temperature for Soldering	T_L	260	$^\circ\text{C}$

(1) Mounted on 2" sq. FR-4 board (1" sq. 2 oz. Cu 0.06" thick single sided) with one die operating, 10 seconds max.

This document contains information on a new product. Specifications and information are subject to change without notice.

Preferred devices are Motorola recommended choices for future use and best overall value.

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ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector–Emitter Sustaining Voltage (I _C = 10 mA _{dc} , I _B = 0 A _{dc})	V _{CEO(sus)}	30	—	—	V _{dc}
Collector Cutoff Current (V _{CE} = 25 V _{dc} , R _{BE} = 200 Ω)	I _{CER}	—	—	20	μA _{dc}
Emitter Cutoff Current (V _{BE} = 5.0 V _{dc})	I _{EBO}	—	—	10	μA _{dc}

ON CHARACTERISTICS(1)

Collector–Emitter Saturation Voltage (I _C = 0.8 A _{dc} , I _B = 20 mA _{dc}) (I _C = 1.2 A _{dc} , I _B = 20 mA _{dc}) (I _C = 5.0 A _{dc} , I _B = 1.0 A _{dc})	V _{CE(sat)}	— — —	0.14 — —	0.20 0.24 0.60	V _{dc}
Base–Emitter Saturation Voltage (I _C = 5.0 A _{dc} , I _B = 1.0 A _{dc})	V _{BE(sat)}	—	—	1.40	V _{dc}
Base–Emitter On Voltage (I _C = 3.0 A _{dc} , V _{CE} = 4.0 V _{dc})	V _{BE(on)}	—	—	1.10	V _{dc}
DC Current Gain (I _C = 1.2 A _{dc} , V _{CE} = 4.0 V _{dc}) (I _C = 3.0 A _{dc} , V _{CE} = 4.0 V _{dc})	h _{FE}	140 125	— 180	— —	—

DYNAMIC CHARACTERISTICS

Output Capacitance (V _{CB} = 10 V _{dc} , I _E = 0 A _{dc} , f = 1.0 MHz)	C _{ob}	—	100	—	pF
Input Capacitance (V _{EB} = 8.0 V _{dc})	C _{ib}	—	135	—	pF
Current–Gain — Bandwidth Product(2) (I _C = 500 mA, V _{CE} = 10 V, F _{test} = 1.0 MHz)	f _T	—	105	—	MHz

(1) Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.

(2) f_T = |h_{FE}| • f_{test}

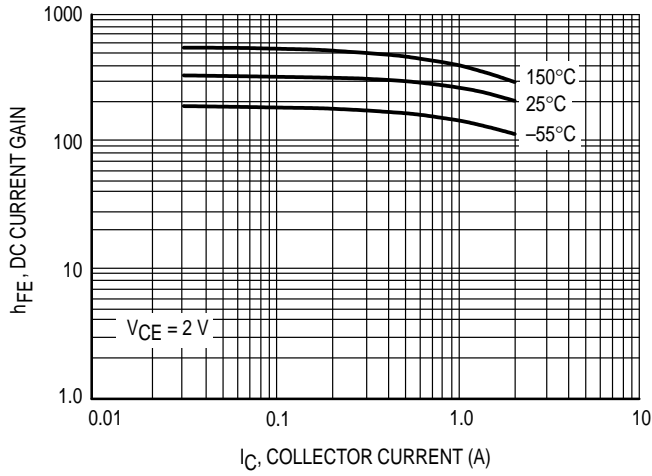


Figure 1. DC Current Gain

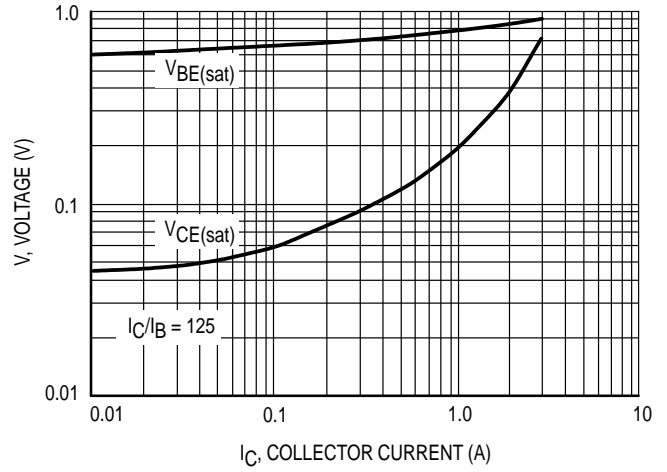


Figure 2. "ON" Voltages

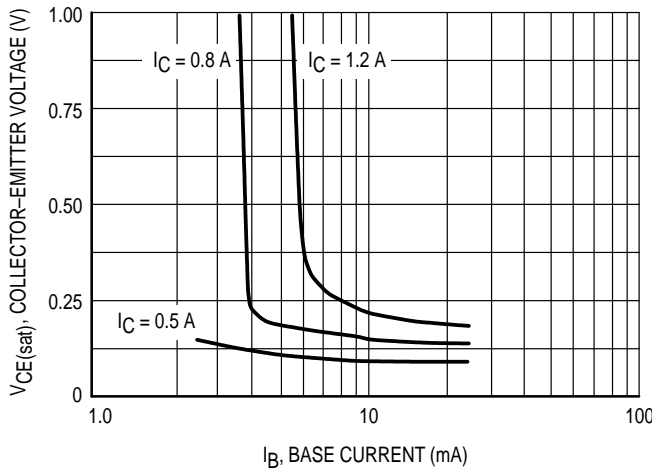


Figure 3. Collector Saturation Region

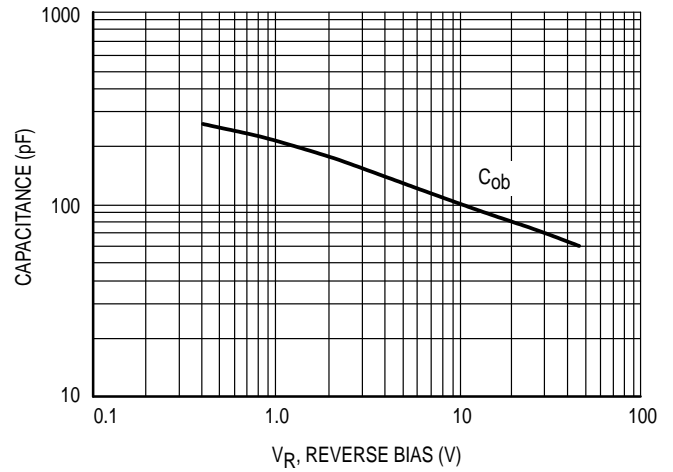


Figure 4. Capacitance

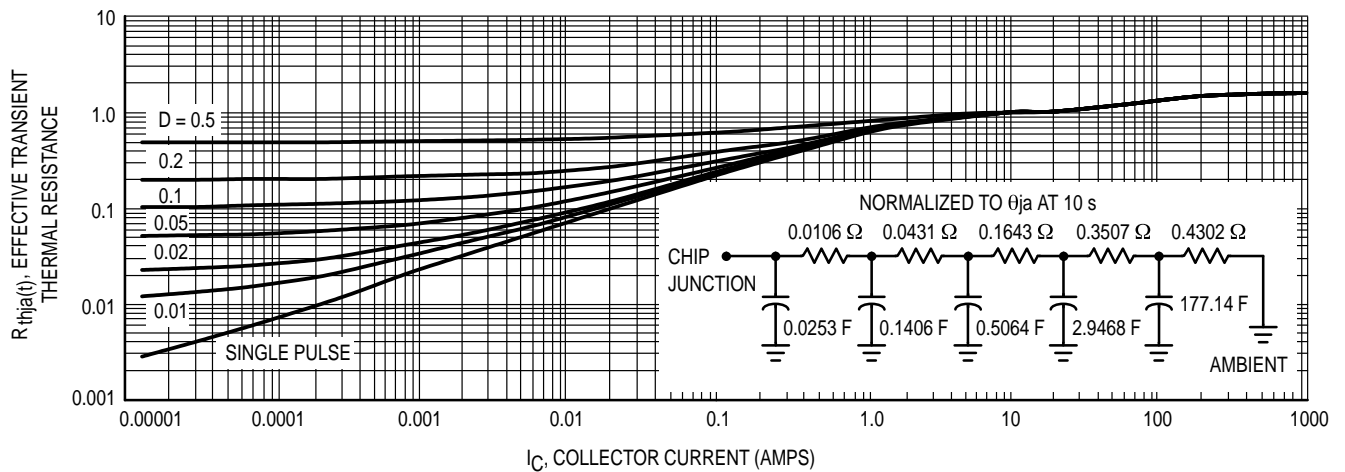
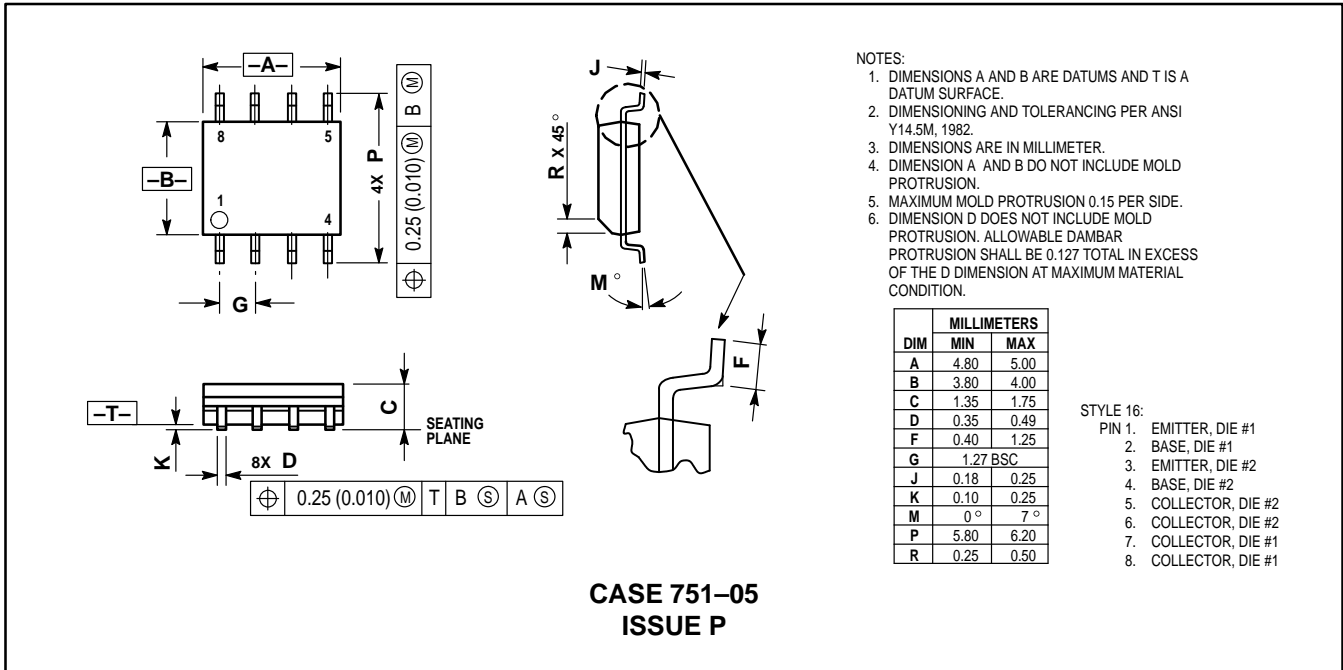


Figure 5. Thermal Response

PACKAGE DIMENSIONS



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