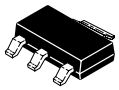
MMJT350T1

Bipolar Power Transistors
PNP Silicon

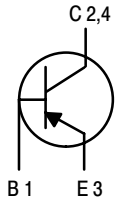
0.5 AMPERE
POWER TRANSISTOR
PNP SILICON
300 VOLTS
2.75 WATTS

. . . designed for use in line–operated applications such as low power, line–operated series pass and switching regulators requiring PNP capability.

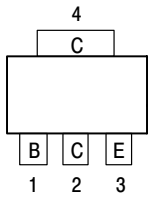
- High Collector–Emitter Sustaining Voltage —
  $V_{CEO(sus)}$ = 300 Vdc @ I_C
  = 1.0 mAdc
- Excellent DC Current Gain —
  h_{FE} = 30–240 @ I_C
  = 50 mAdc



CASE 318E–04, Style 1



Schematic



Top View Pinout

MAXIMUM RATINGS (T_C = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V_{CEO}	300	Vdc
Collector–Base Voltage	V_{CB}	300	Vdc
Emitter–Base Voltage	V_{EB}	3.0	Vdc
Collector Current — Continuous — Peak	I_C	0.5 0.75	Adc
Total Power Dissipation @ T_C = 25°C Derate above 25°C Total P_D @ T_A = 25°C mounted on 1” sq. (645 sq. mm) Collector pad on FR–4 bd material Total P_D @ T_A = 25°C mounted on 0.012” sq. (7.6 sq. mm) Collector pad on FR–4 bd material	P_D	2.75 22 1.40 0.65	Watts mW/°C Watts Watts
Operating and Storage Junction Temperature Range	T_J, T_{stg}	–55 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance – Junction to Case – Junction to Ambient on 1” sq. (645 sq. mm) Collector pad on FR–4 bd material – Junction to Ambient on 0.012” sq. (7.6 sq. mm) Collector pad on FR–4 bd material	$R_{\theta JC}$ $R_{\theta JA}$ $R_{\theta JA}$	45 85 190	°C/W
Maximum Lead Temperature for Soldering Purposes, 1/8” from case for 5 seconds	T_L	260	°C

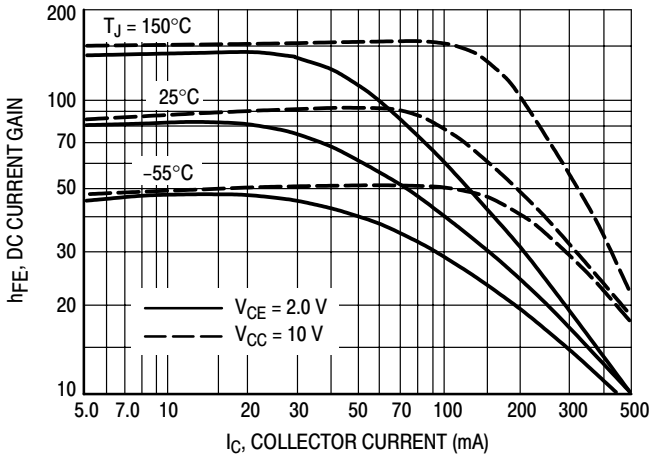


Figure 1. DC Current Gain

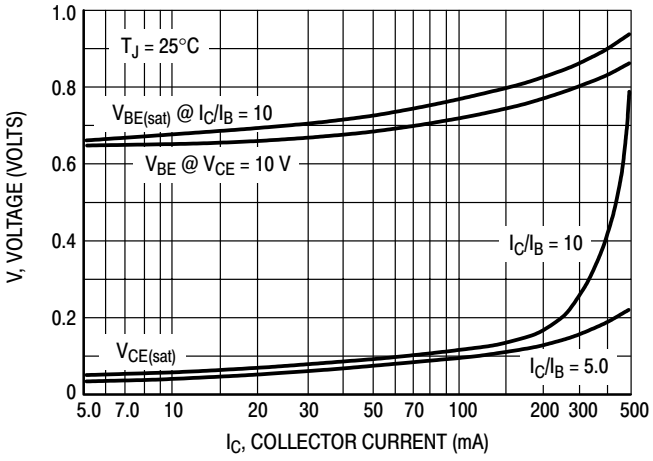


Figure 2. "On" Voltages

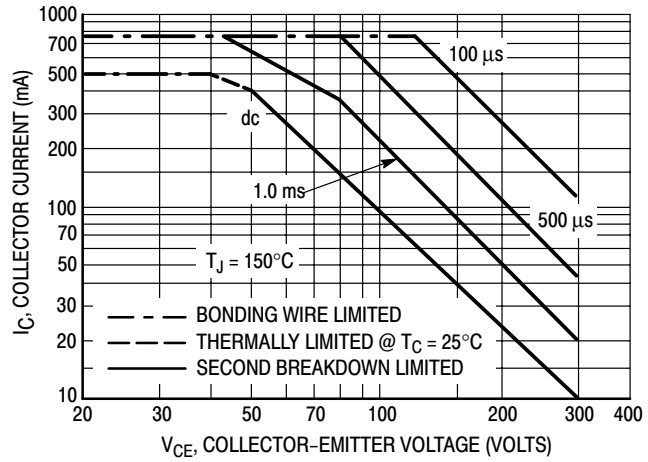


Figure 3. Active−Region Safe Operating Area

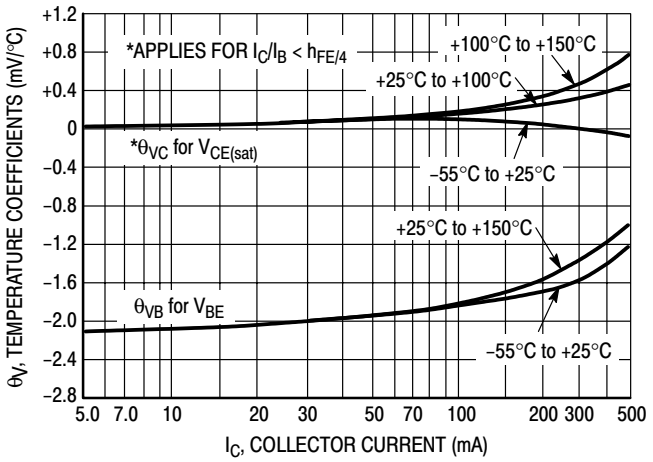


Figure 4. Temperature Coefficients

There are two limitations on the power handling ability of a transistor: average junction temperature and second breakdown. Safe operating area curves indicate $I_C - V_{CE}$ limits of the transistor that must be observed for reliable operation; i.e., the transistor must not be subjected to greater dissipation than the curves indicate.

The data of Figure 3 is based on $T_{J(pk)}$ = 150°C; T_C is variable depending on conditions. Second breakdown pulse limits are valid for duty cycles to 10% provided $T_{J(pk)} \leq$ 150°C. At high case temperatures, thermal limitations will reduce the power that can be handled to values less than the limitations imposed by second breakdown.

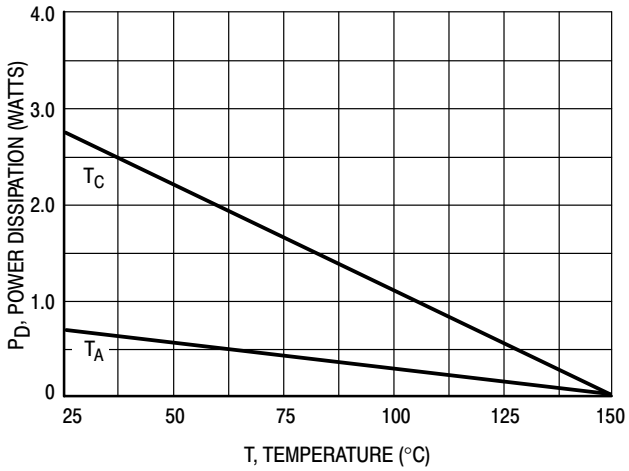
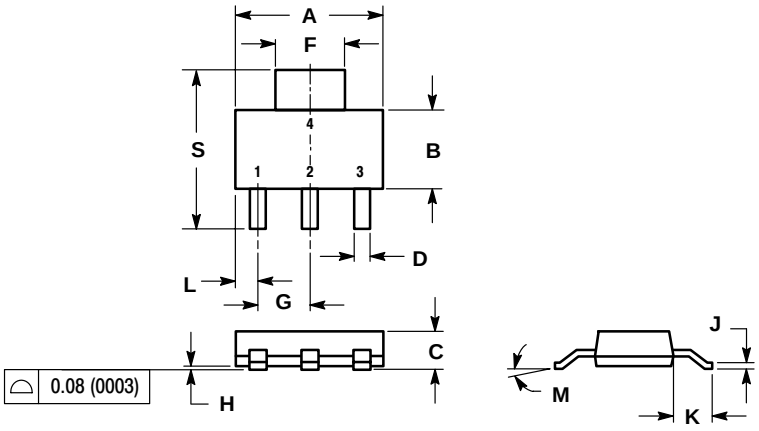


Figure 5. Power Derating

PACKAGE DIMENSIONS

SOT−223 (TO−261)
CASE 318E−04
ISSUE K



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.249	0.263	6.30	6.70
B	0.130	0.145	3.30	3.70
C	0.060	0.068	1.50	1.75
D	0.024	0.035	0.60	0.89
F	0.115	0.126	2.90	3.20
G	0.087	0.094	2.20	2.40
H	0.0008	0.0040	0.020	0.100
J	0.009	0.014	0.24	0.35
K	0.060	0.078	1.50	2.00
L	0.033	0.041	0.85	1.05
M	0 °	10 °	0 °	10 °
S	0.264	0.287	6.70	7.30

STYLE 1:
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2. COLLECTOR
3. EMITTER
4. COLLECTOR

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