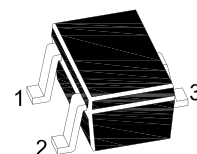


MMBTSA1774E

PNP Silicon Epitaxial Planar Transistor

General purpose transistor



1.Base 2.Emitter 3.Collector
SOT-523 Plastic Package

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	60	V
Collector Emitter Voltage	$-V_{CEO}$	50	V
Emitter Base Voltage	$-V_{EBO}$	6	V
Collector Current	$-I_C$	150	mA
Power Dissipation	P_{tot}	150	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction Ambient ¹⁾	$R_{\theta JA}$	833	$^\circ\text{C/W}$

¹⁾ Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

Characteristics at $T_a = 25^\circ\text{C}$

Parameter		Symbol	Min.	Typ.	Max.	Unit	
DC Current Gain at $-V_{CE} = 6\text{ V}$, $-I_C = 1\text{ mA}$	Current Gain Group	Q	h_{FE}	120	-	270	-
		R	h_{FE}	180	-	390	-
		S	h_{FE}	270	-	560	-
Collector Base Cutoff Current at $-V_{CB} = 60\text{ V}$		$-I_{CBO}$	-	-	100	nA	
Emitter Base Cutoff Current at $-V_{EB} = 6\text{ V}$		$-I_{EBO}$	-	-	100	nA	
Collector Base Breakdown Voltage at $-I_C = 50\text{ }\mu\text{A}$		$-V_{(BR)CBO}$	60	-	-	V	
Collector Emitter Breakdown Voltage at $-I_C = 1\text{ mA}$		$-V_{(BR)CEO}$	50	-	-	V	
Emitter Base Breakdown Voltage at $-I_E = 50\text{ }\mu\text{A}$		$-V_{(BR)EBO}$	6	-	-	V	
Collector Emitter Saturation Voltage at $-I_C = 50\text{ mA}$, $-I_B = 5\text{ mA}$		$-V_{CE(sat)}$	-	-	0.5	V	
Transition Frequency at $-V_{CE} = 12\text{ V}$, $I_E = 2\text{ mA}$, $f = 30\text{ MHz}$		f_T	-	140	-	MHz	
Collector Output Capacitance at $-V_{CB} = 12\text{ V}$, $f = 1\text{ MHz}$		C_{ob}	-	-	5	pF	

Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

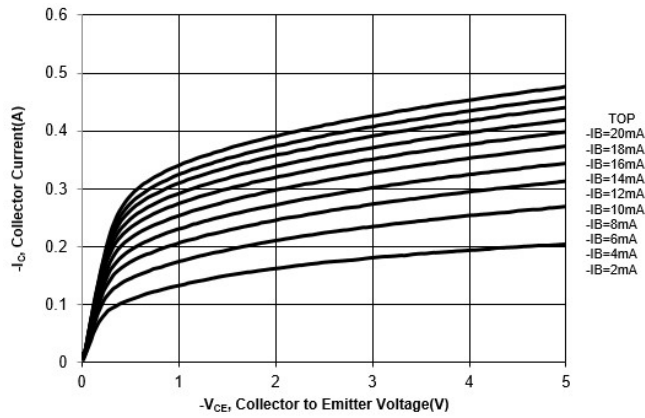


Fig. 2 Collector Current vs. Base to Emitter Voltage

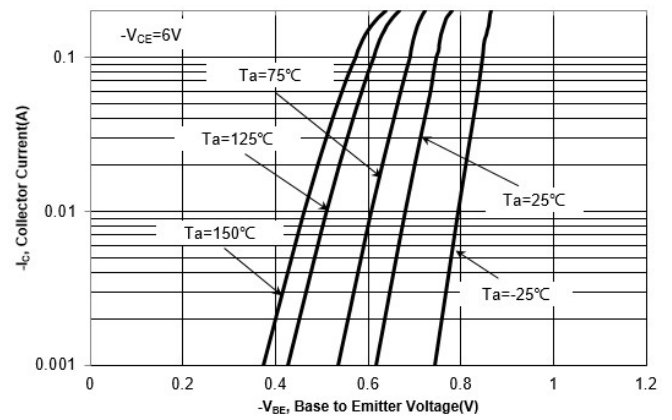


Fig. 3 DC Current Gain vs. Collector Current

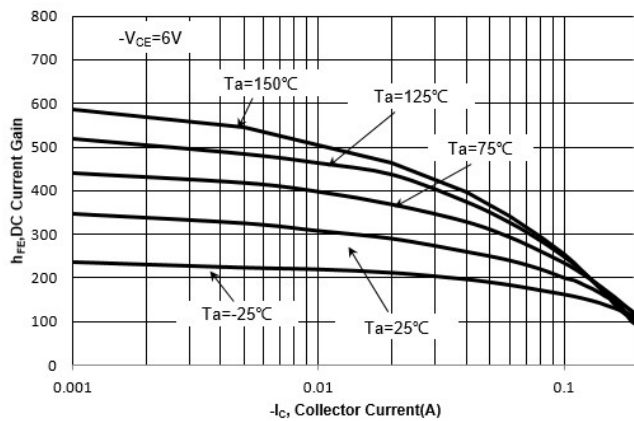


Fig. 4 V_{BESAT} vs. Collector Current

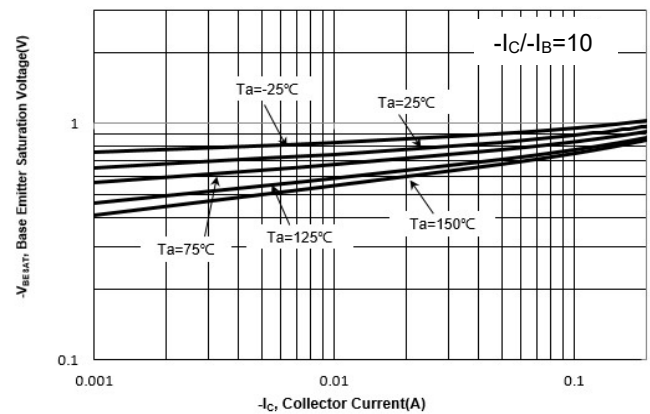


Fig. 5 V_{CESAT} vs. Collector Current

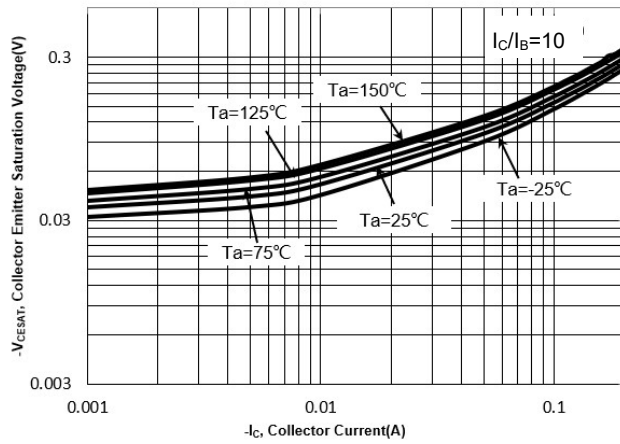


Fig. 6 Output Capacitance

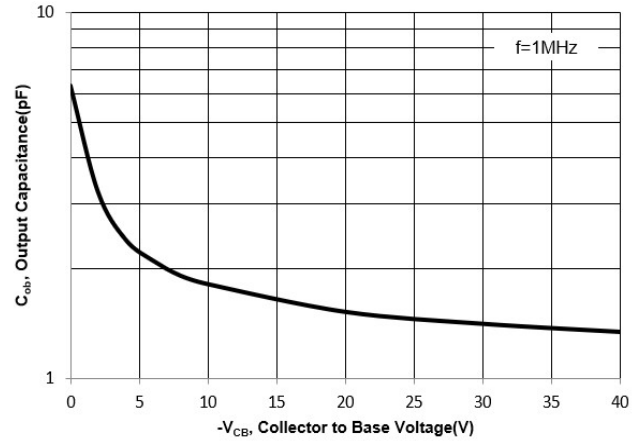
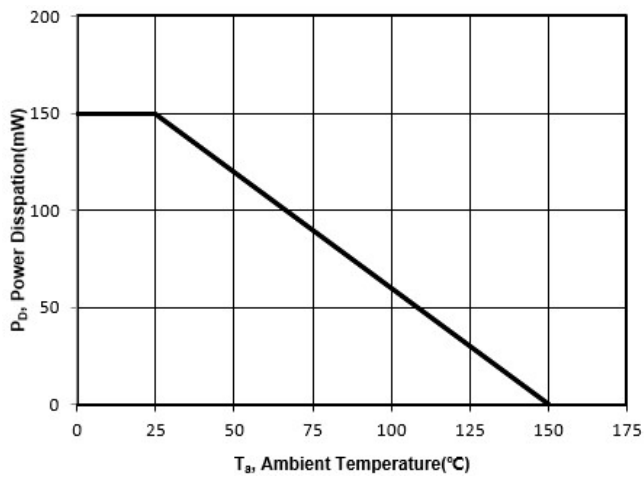


Fig. 7 Power Derating Curve



Marking information

" ** " = Part No.

MMBTSA1774QE: 3E

MMBTSA1774RE: 3F

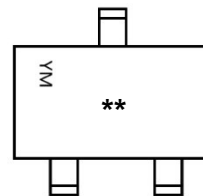
MMBTSA1774SE: 3G

" YM " = Date Code Marking

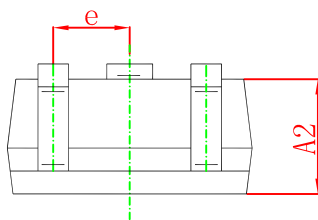
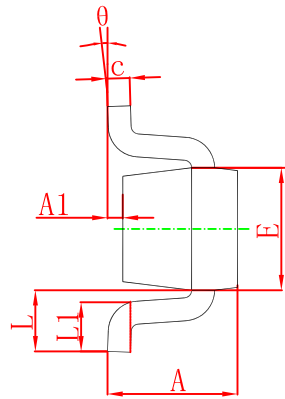
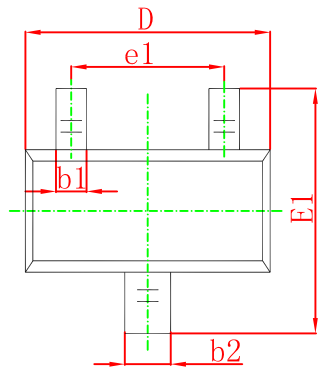
" Y " = Year

" M " = Month

Font type: Arial



SOT-523 PACKAGE OUTLINE Plastic surface mounted package



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.650	0.950	0.026	0.037
A1	0.000	0.100	0.000	0.004
A2	0.650	0.850	0.026	0.033
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.050	0.200	0.002	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°