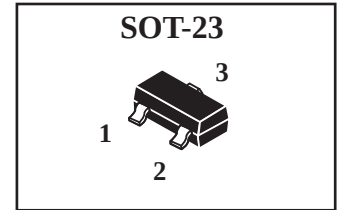
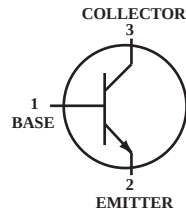


High-Voltage NPN Transistor Surface Mount

 Lead(Pb)-Free



Maximum Ratings

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	400	Vdc
Collector-Base Voltage	V_{CBO}	450	Vdc
Emitter-Base Voltage	V_{EBO}	6.0	Vdc
Collector Current-Continuous	I_C	300	mA

Thermal Characteristics

Characteristics	Symbol	Max	Unit
Total Device Dissipation FR-5 Board ⁽¹⁾ $T_A=25^{\circ}\text{C}$ Derate above 25°C	P_D	225	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	1.8	$\text{mW}/^{\circ}\text{C}$
		556	$^{\circ}\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate, ⁽²⁾ $T_A=25^{\circ}\text{C}$ Derate above 25°C	P_D	350	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	2.8	$\text{mW}/^{\circ}\text{C}$
		357	$^{\circ}\text{C}/\text{W}$
Junction and Storage, Temperature	T_J, T_{stg}	-55 to +150	$^{\circ}\text{C}$

Device Marking

MMBTA44=3D

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ Unless Otherwise noted)

Characteristics	Symbol	Min	Max	Unit
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Off Characteristics

Collector-Emitter Breakdown Voltage ⁽³⁾ ($I_C=1.0\text{mA}$, $I_B=0$)	$V_{(BR)CEO}$	400	-	Vdc
Collector-Base Breakdown Voltage ($I_C=100\text{ }\mu\text{A}$, $I_E=0$)	$V_{(BR)CBO}$	450	-	Vdc
Emitter-Base Breakdown Voltage ($I_E=10\text{ }\mu\text{A}$, $I_C=0$)	$V_{(BR)EBO}$	6.0	-	Vdc
Base Cutoff Current ($V_{CB}=400\text{ Vdc}$, $I_E=0$)	I_{CBO}	-	100	nA
Emitter Cutoff Current $V_{EB}=4\text{V}$, $I_C=0$	I_{EBO}	-	100	nA

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

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

3.Pulse Test:Pulse Width $\leq 300\text{ }\mu\text{s}$, Duty Cycle $\leq 2.0\%$.

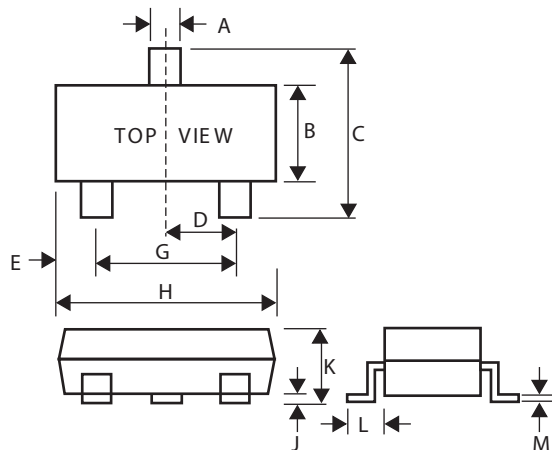
Electrical Characteristics ($T_A=25\text{ }^{\circ}\text{C}$ unless otherwise noted) (Continued)

Characteristics	Symbol	Min	Max	Unit
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On Characteristics

DC Current Gain ($I_C = 1.0\text{ mA}$, $V_{CE} = 10\text{ Vdc}$)	$H_{FE(1)}$	40	-	-
($I_C = 10\text{ mA}$, $V_{CE} = 10\text{ Vdc}$)	$H_{FE(2)}$	50	2.00	-
($I_C = 50\text{ mA}$, $V_{CE} = 10\text{ Vdc}$)	$H_{FE(3)}$	45	-	-
($I_C = 100\text{ mA}$, $V_{CE} = 10\text{ Vdc}$)	$H_{FE(4)}$	20	-	-
Collector-Emitter Saturation Voltage ⁽³⁾ ($I_C = 1.0\text{ mA}$, $I_B = 0.1\text{ mA}$)	$V_{CE(sat)}$	-	0.40	Vdc
($I_C = 10\text{ mA}$, $I_B = 1.0\text{ mA}$)			0.50	
($I_C = 50\text{ mA}$, $I_B = 5.0\text{ mA}$)			0.75	
Base-Emitter Saturation Voltage ⁽³⁾ ($I_C = 10\text{ mA}$, $I_B = 1.0\text{ mA}$)	$V_{BE(sat)}$	-	0.75	Vdc
Current-Gain-Bandwidth Product ($I_C = 10\text{ mA}$, $V_{CE} = 10\text{ Vdc}$, $f = 10\text{ MHz}$)	f_T	20	-	MHz

SOT-23 Package Outline Dimension



SOT-23		
Dim	Min	Max
A	0.35	0.51
B	1.19	1.40
C	2.10	3.00
D	0.85	1.05
E	0.46	1.00
G	1.70	2.10
H	2.70	3.10
J	0.01	0.13
K	0.89	1.10
L	0.30	0.61
M	0.076	0.25