

Plastic-Encapsulate Transistors

TRANSISTOR (NPN)

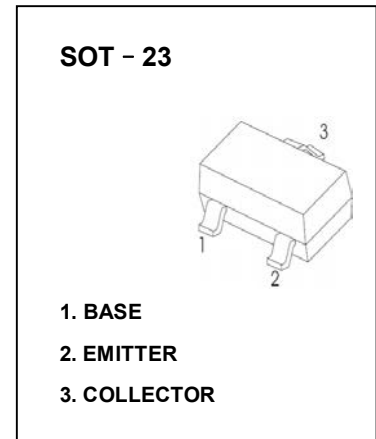
FEATURES

- High Voltage Transistor

MARKING:M1F

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	160	V
V_{CEO}	Collector-Emitter Voltage	140	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current	600	mA
P_C	Collector Power Dissipation	225	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	556	$^{\circ}\text{C}/\text{W}$
T_J, T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	$^{\circ}\text{C}$



ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=0.1\text{mA}, I_E=0$	160			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}^*$	$I_C=1\text{mA}, I_B=0$	140			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=0.01\text{mA}, I_C=0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB}=100\text{V}, I_E=0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=4\text{V}, I_C=0$			50	nA
DC current gain	$h_{FE(1)}$	$V_{CE}=5\text{V}, I_C=1\text{mA}$	60			
	$h_{FE(2)}$	$V_{CE}=5\text{V}, I_C=10\text{mA}$	60		250	
	$h_{FE(3)}$	$V_{CE}=5\text{V}, I_C=50\text{mA}$	20			
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C=10\text{mA}, I_B=1\text{mA}$			0.15	V
	$V_{CE(sat)2}$	$I_C=50\text{mA}, I_B=5\text{mA}$			0.25	V
Base-emitter saturation voltage	$V_{BE(sat)1}$	$I_C=10\text{mA}, I_B=1\text{mA}$			1	V
	$V_{BE(sat)2}$	$I_C=50\text{mA}, I_B=5\text{mA}$			1.2	V

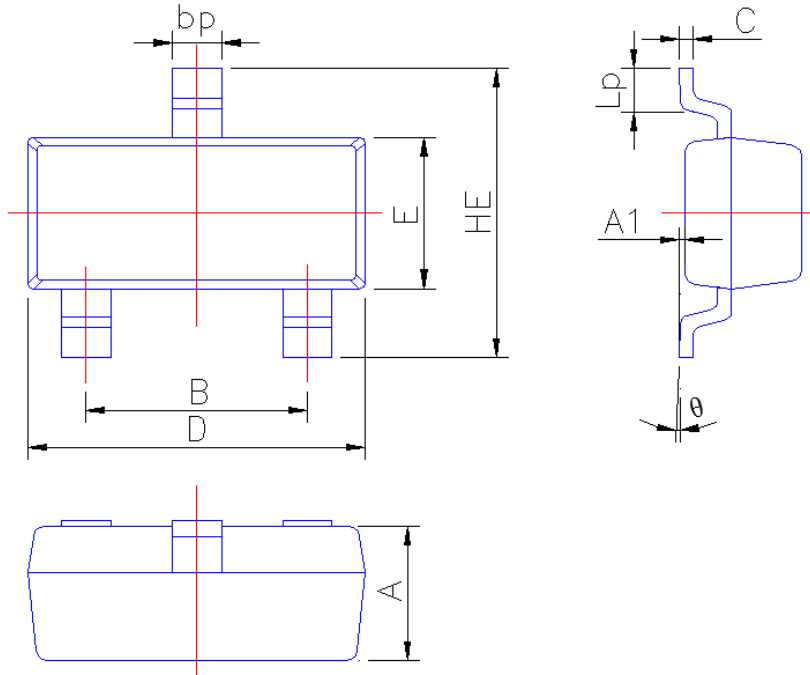
*Pulse test: pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2.0\%$.



PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



Symbol	Dimension in Millimeters	
	Min	Max
A	0.90	1.10
A1	0.013	0.100
B	1.80	2.00
bp	0.35	0.50
C	0.09	0.150
D	2.80	3.00
E	1.20	1.40
HE	2.20	2.80
Lp	0.20	0.50
θ	0°	5°