

SOT-23 Plastic-Encapsulate Transistors

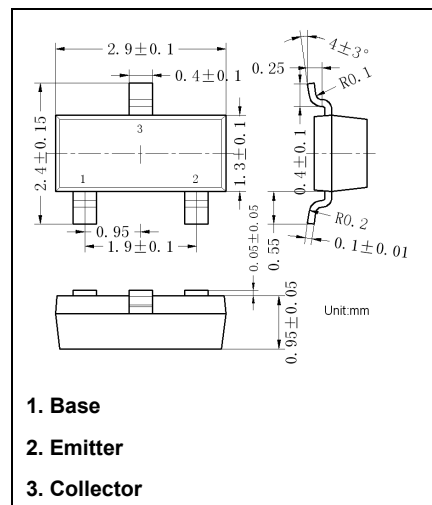
MMBTA42

NPN Transistors

Features

- High breakdown voltage
- Low collector-emitter saturation voltage
- Complementary to MMBTA92 (PNP)

Marking: 1D



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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector Base Voltage	300	V
V_{CEO}	Collector Emitter Voltage	300	V
V_{EBO}	Emitter Base Voltage	5	V
I_C	Collector Current -Continuous	0.3	A
I_{CM}	Collector Current-Peak	0.5	A
P_C	Collector Power Dissipation	350	mW
$R_{\theta JA}$	Thermal Resistance, junction to Ambient	357	$^{\circ}\text{C/W}$
T_j	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	- 55 to +150	$^{\circ}\text{C}$

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

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$V_{(BR)CBO}$	Collector-base breakdown voltage	$I_C = 100\mu\text{A}, I_E = 0$	300			V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_C = 1\text{mA}, I_B = 0$	300			V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E = 100\mu\text{A}, I_C = 0$	5			V
I_{CBO}	Collector cut-off current	$V_{CB} = 200\text{V}, I_E = 0$			250	nA
I_{EBO}	Emitter cut-off current	$V_{EB} = 5\text{V}, I_C = 0$			100	nA
$h_{FE(1)}$	DC current gain	$V_{CE} = 5\text{V}, I_C = 1\text{mA}$	100			
$h_{FE(2)}$		$V_{CE} = 5\text{V}, I_C = 10\text{mA}$	100			
$h_{FE(3)}$		$V_{CE} = 10\text{V}, I_C = 1\text{mA}$	60			
$h_{FE(4)}$		$V_{CE} = 10\text{V}, I_C = 10\text{mA}$	100		200	
$h_{FE(5)}$		$V_{CE} = 10\text{V}, I_C = 30\text{mA}$	60			
$V_{CE(sat)}$	Collector-emitter saturation voltage	$I_C = 20\text{mA}, I_B = 2\text{mA}$			0.2	V
$V_{BE(sat)}$	Base-emitter saturation voltage	$I_C = 20\text{mA}, I_B = 2\text{mA}$			0.9	V
f_T	Transition frequency	$V_{CE}=20\text{V}, I_C=10\text{mA}, f=30\text{MHz}$	50			MHz

Typical Characteristics

