



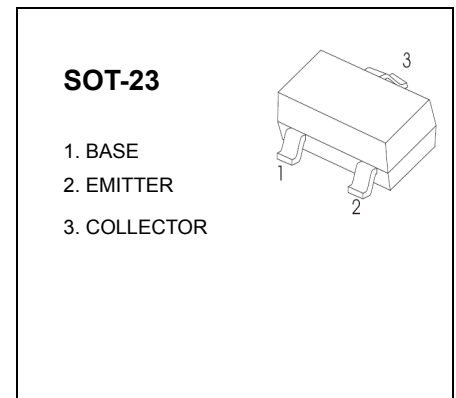
SOT-23 Plastic-Encapsulate Transistors

MMBTA42Z-1D

MMBTA42Z TRANSISTOR (NPN)

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_{CB0}	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	0.35	W
$R_{\theta JA}$	Thermal Resistance, junction to Ambient	357	$^\circ\text{C}/\text{W}$
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-55~+150	$^\circ\text{C}$

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

Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}, I_E = 0$	300		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, I_B = 0$	300		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 100\mu\text{A}, I_C = 0$	5		V
Collector cut-off current	I_{CBO}	$V_{CB} = 200\text{V}, I_E = 0$		0.5	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5\text{V}, I_C = 0$		0.5	μA
DC current gain	$h_{FE(1)}$	$V_{CE} = 10\text{V}, I_C = 1\text{mA}$	60		
	$h_{FE(2)}$	$V_{CE} = 10\text{V}, I_C = 10\text{mA}$	100	200	
	$h_{FE(3)}$	$V_{CE} = 10\text{V}, I_C = 30\text{mA}$	60		
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 20\text{mA}, I_B = 2\text{mA}$		0.2	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 20\text{mA}, I_B = 2\text{mA}$		1.0	V
Transition frequency	f_T	$V_{CE} = 20\text{V}, I_C = 10\text{mA}, f = 30\text{MHz}$	50		MHz