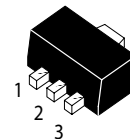


NPN Plastic-Encapsulate Transistor
 **Lead(Pb)-Free**
SOT-89

1. BASE
2. COLLECTOR
3. EMITTER

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

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	300	Vdc
Collector-Base Voltage	V_{CBO}	300	Vdc
Emitter-Base Voltage	V_{EBO}	5.0	Vdc
Collector Current-Continuous	I_C	500	mAdc

Thermal Characteristics

Characteristics	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (Note 1.) $T_A=25^{\circ}\text{C}$ Derate above 25°C	P_D	500 4.0	mW mW/ $^{\circ}\text{C}$
Thermal Resistance, Junction to Ambient ⁽¹⁾	$R_{\theta JA}$	250	$^{\circ}\text{C}/\text{W}$
Junction and Storage, Temperature Range	T_J, T_{stg}	-55 to +150	$^{\circ}\text{C}$

Device Marking

MXTA42=A42

Characteristics	Symbol	Min	Max	Unit
Collector-Emitter Breakdown Voltage ($I_C=1.0\text{ mAdc}, I_E=0$)	$V_{(BR)CEO}$	300	-	Vdc
Collector-Base Breakdown Voltage ($I_C=100\text{ }\mu\text{Adc}, I_E=0$)	$V_{(BR)CBO}$	300	-	Vdc
Emitter-Base Breakdown Voltage ($I_E=100\text{ }\mu\text{Adc}, I_C=0$)	$V_{(BR)EBO}$	5.0	-	Vdc
Collector Cutoff Current ($V_{CB}=200\text{ Vdc}, I_E=0$)	I_{CBO}	-	0.25	μAdc
Emitter Cutoff Current ($V_{EB}=5.0\text{ Vdc}, I_C=0$)	I_{EBO}	-	0.1	μAdc

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

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

Characteristics	Symbol	Min	Max	Unit
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ON CHARACTERISTICS

DC Current Gain ($I_C=1\text{ mAdc}, V_{CE}=10\text{ Vdc}$) ($I_C=10\text{ mAdc}, V_{CE}=10\text{ Vdc}$) ($I_C=30\text{ mAdc}, V_{CE}=10\text{ Vdc}$)	$h_{FE(1)}$ $h_{FE(2)}$ $h_{FE(3)}$	60 80 75	- 250 -	-
Collector-Emitter Saturation Voltage ($I_C=20\text{ mAdc}, I_B=2\text{ mAdc}$)	$V_{CE(sat)}$	-	0.2	Vdc
Base-Emitter Saturation Voltage ($I_C=20\text{ mAdc}, I_B=2\text{ mAdc}$)	$V_{BE(sat)}$	-	0.9	Vdc
Transition Frequency ($V_{CE}=20\text{ Vdc}, I_C=10\text{ mAdc}, f=30\text{ MHz}$)	f_T	50	-	MHz

Classification of $h_{FE(2)}$

Rank	A	B1	B2	C
Range	80-100	100-150	150-200	200-250

Typical Characteristics

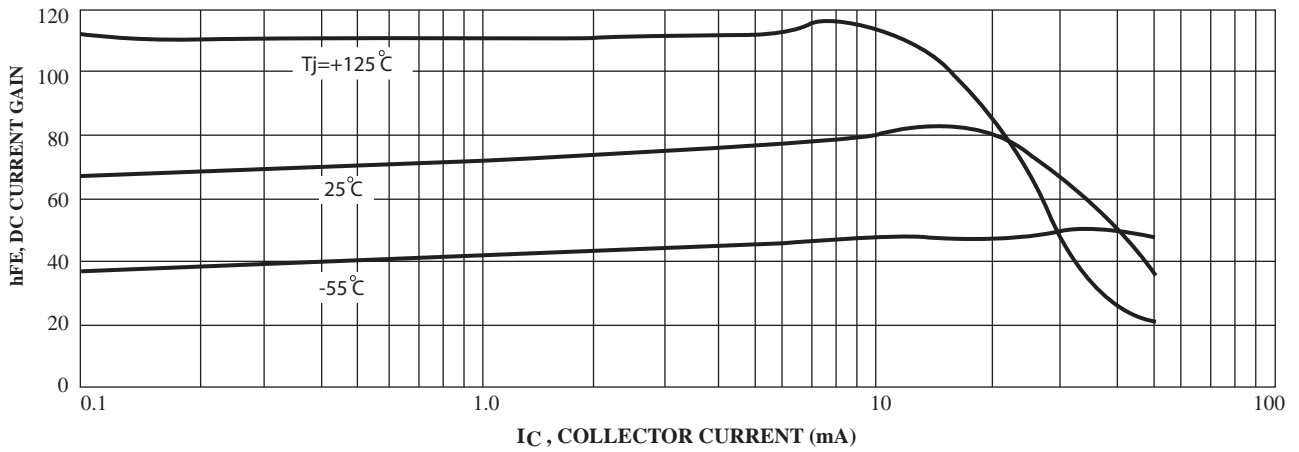


FIG. 1 DC Current Gain

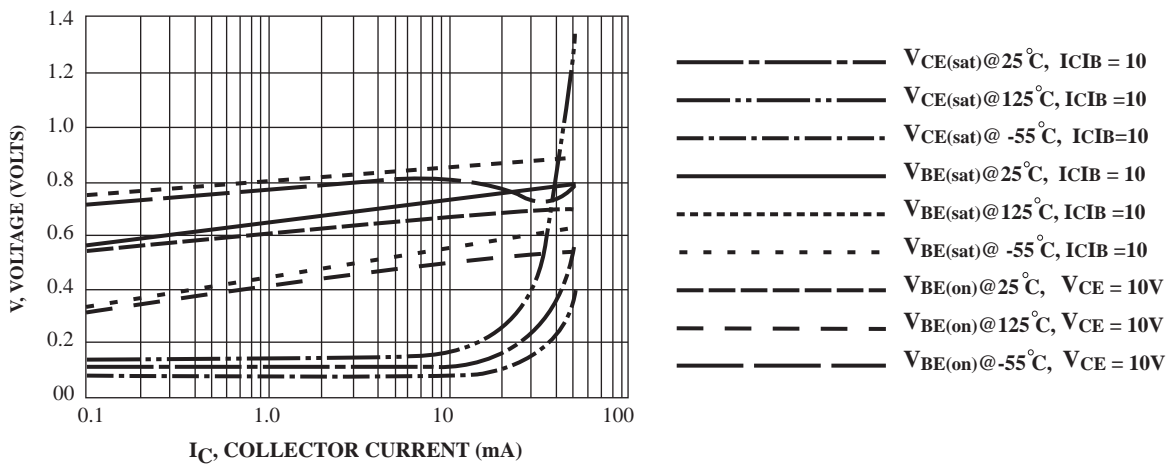


FIG. 2 "On" Voltages

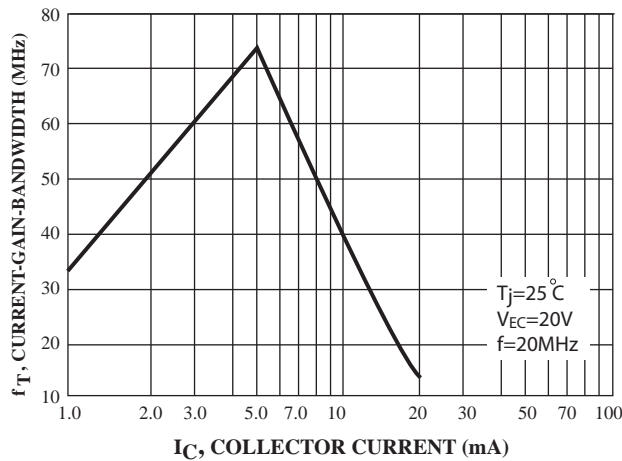
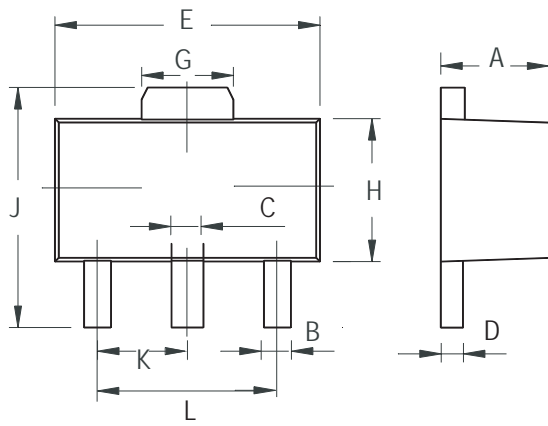


FIG. 3 Current-Gain-Bandwidth

SOT-89 Outline Dimensions

unit:mm



SOT-89		
Dim	Min	Max
A	1.400	1.600
B	0.320	0.520
C	0.360	0.560
D	0.350	0.440
E	4.400	4.600
G	1.400	1.800
H	2.300	2.600
J	3.940	4.250
K	1.500TYP	
L	2.900	3.100