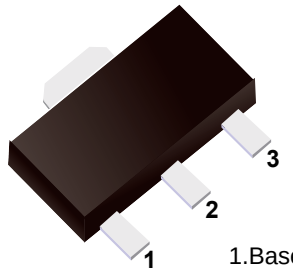
NPN TRANSISTOR



1.Base
2.Collector
3.Emitter

SOT-89

FEATURES

- High breakdown voltage
- Low collector-emitter saturation voltage
- Complementary to MPSA92SI (PNP)

Marking Code	
MMBTA42SI	A42

MAXIMUM RATINGS (TA=25℃ unless otherwise noted)

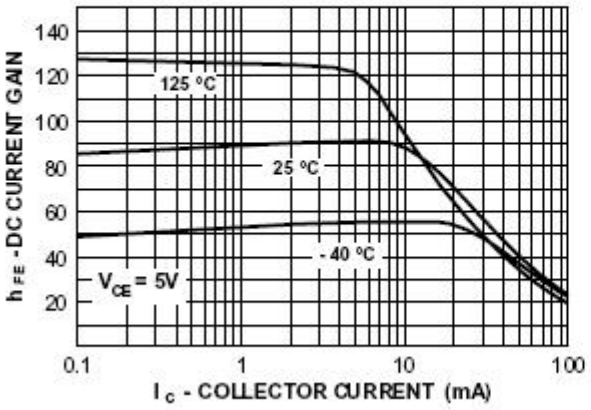
Characteristics	Symbols	Value	Units
Collector-Base Voltage	V_{CBO}	300	V
Collector-Emitter Voltage	V_{CEO}	300	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current -Continuous	I_C	0.3	A
Collector Power dissipation	P_C	0.35	W
Thermal Resistance, junction to Ambient	$R_{\theta JA}$	357	°C/mW
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS (Tamb=25℃ unless otherwise specified)

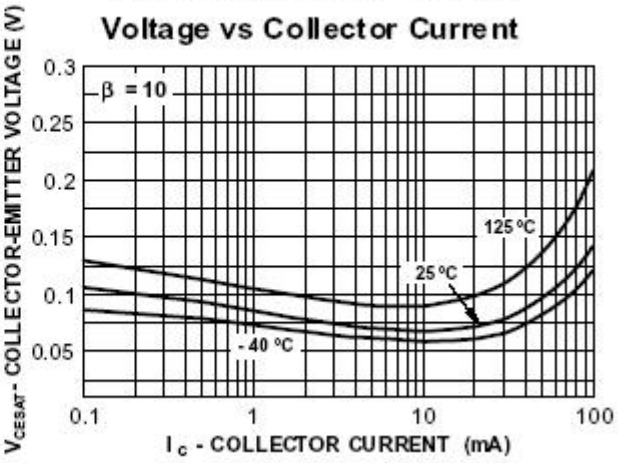
Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Collector-base breakdown voltage	I_C= 100μA, I_E=0	$V_{(BR)CBO}$	300	-	-	V
Collector-emitter breakdown voltage	I_C= 1mA, I_B=0	$V_{(BR)CEO}$	300	-	-	V
Emitter-base breakdown voltage	I_E= 100μA, I_C=0	$V_{(BR)EBO}$	5	-	-	V
Collector cut-off current	V_{CB}=200V, I_E=0	I_{CBO}	-	-	0.25	μA
Emitter cut-off current	V_{EB}= 5V, I_C=0	I_{EBO}	-	-	0.1	μA
DC current gain	V_{CE}= 10V, I_C= 1mA	$h_{FE(1)}$	60	-	-	
	V_{CE}= 10V, I_C= 10mA	$h_{FE(2)}$	100	-	200	
	V_{CE}= 10V, I_C= 30mA	$h_{FE(3)}$	60	-	-	
Collector-emitter saturation voltage	I_C=20mA, I_B= 2mA	$V_{CE(sat)}$	-	-	0.2	V
Base-emitter saturation voltage	I_C= 20mA, I_B=2mA	$V_{BE(sat)}$	-	-	0.9	V
Transition frequency	V_{CE}= 20V, I_C= 10mA, f=30MHz	f_T	50	-	-	MHz

Typical Characteristics

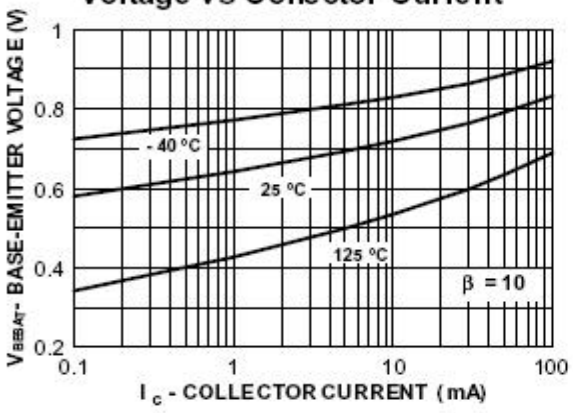
DC Current Gain vs Collector Current



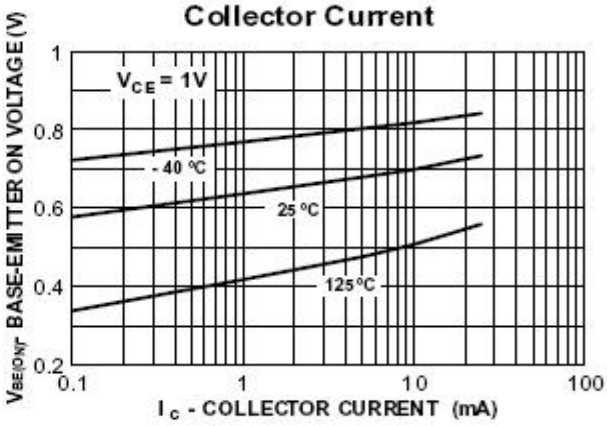
Collector-Emitter Saturation Voltage vs Collector Current



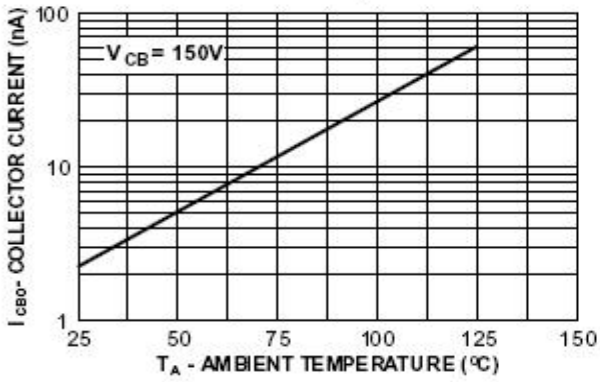
Base-Emitter Saturation Voltage vs Collector Current



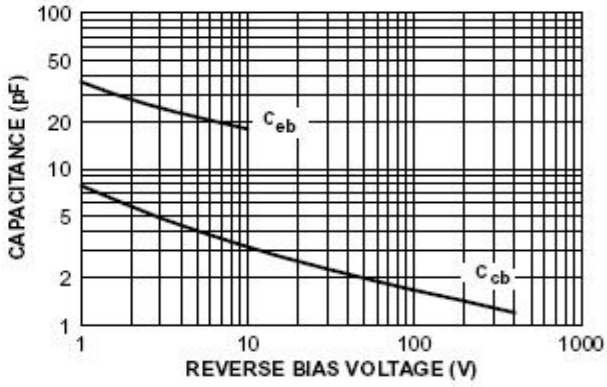
Base-Emitter ON Voltage vs Collector Current



Collector-Cutoff Current vs Ambient Temperature



Collector-Base and Emitter-Base Capacitance vs Reverse Bias Voltage

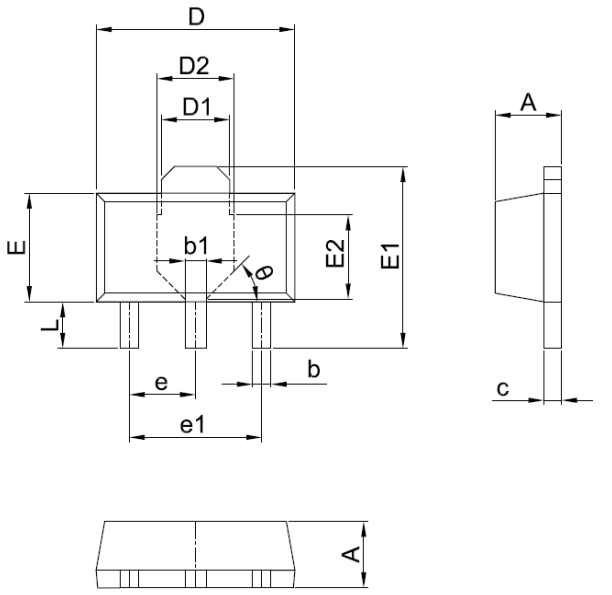


Ordering information

Package	Packing Description	Base Quantity	Packing Quantity
SOT-89	Tape/Reel,7"reel	1000pcs/Reel	6000PCS/Box 30000PCS/Carton

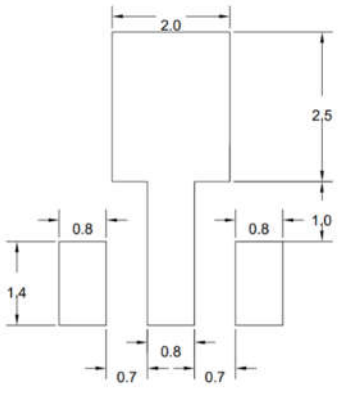
Package Dimensions

SOT-89



Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	1.40	1.60	0.055	0.063
b	0.32	0.52	0.013	0.020
b1	0.38	0.58	0.015	0.023
c	0.35	0.45	0.014	0.018
D	4.40	4.60	0.173	0.181
D1	1.45	1.65	0.057	0.065
D2	1.70	1.80	0.067	0.071
E	2.30	2.60	0.091	0.102
E1	3.95	4.25	0.156	0.167
E2	1.80	2.00	0.071	0.079
e	1.40	1.60	0.055	0.063
e1	2.80	3.20	0.110	0.126
L	0.90	1.20	0.035	0.047

The recommended mounting pad size



UNIT:MM

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