

MPSA44U

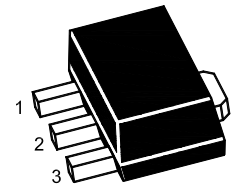
NPN Silicon Epitaxial Planar Transistor

Features

- Low Collector Emitter Saturation Voltage

Applications

- For high voltage switching and amplifier applications.



1.Base 2.Collector 3.Emitter
SOT-89 Plastic Package

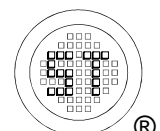
Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CB0}	500	V
Collector Emitter Voltage	V_{CEO}	400	V
Emitter Base Voltage	V_{EBO}	6	V
Collector Current	I_C	300	mA
Total Power Dissipation	P_{tot}	625	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient ¹⁾	$R_{\theta JA}$	200	$^\circ\text{C/W}$

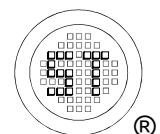
¹⁾ Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout



MPSA44U

Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain				
at $V_{CE} = 10\text{ V}$, $I_C = 1\text{ mA}$	h_{FE}	40	-	-
at $V_{CE} = 10\text{ V}$, $I_C = 10\text{ mA}$	h_{FE}	50	200	-
at $V_{CE} = 10\text{ V}$, $I_C = 50\text{ mA}$	h_{FE}	45	-	-
at $V_{CE} = 10\text{ V}$, $I_C = 100\text{ mA}$	h_{FE}	40	-	-
Collector Base Cutoff Current at $V_{CB} = 400\text{ V}$	I_{CBO}	-	0.1	μA
Collector Emitter Cutoff Current at $V_{CE} = 400\text{ V}$	I_{CES}	-	0.5	μA
Emitter Base Cutoff Current at $V_{EB} = 4\text{ V}$	I_{EBO}	-	0.1	μA
Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CBO}$	500	-	V
Collector Emitter Breakdown Voltage at $I_C = 1\text{ mA}$	$V_{(BR)CEO}$	400	-	V
Emitter Base Breakdown Voltage at $I_E = 100\text{ }\mu\text{A}$	$V_{(BR)EBO}$	6	-	V
Collector Emitter Saturation Voltage				
at $I_C = 1\text{ mA}$, $I_B = 0.1\text{ mA}$	$V_{CE(sat)}$	-	0.4	V
at $I_C = 10\text{ mA}$, $I_B = 1\text{ mA}$		-	0.5	V
at $I_C = 50\text{ mA}$, $I_B = 5\text{ mA}$		-	0.75	V
Base Emitter Saturation Voltage at $I_C = 10\text{ mA}$, $I_B = 1\text{ mA}$	$V_{BE(sat)}$	-	0.75	V
Collector Output Capacitance at $V_{CB} = 20\text{ V}$, $f = 1\text{ MHz}$	C_{ob}	-	7	pF



MPSA44U

Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

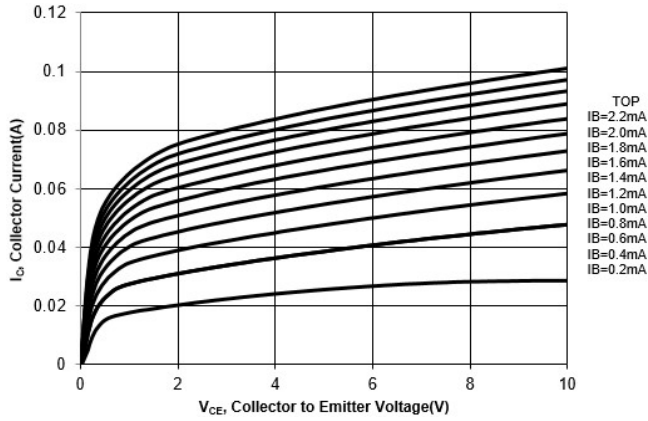


Fig. 2 Collector Current vs. Base to Emitter Voltage

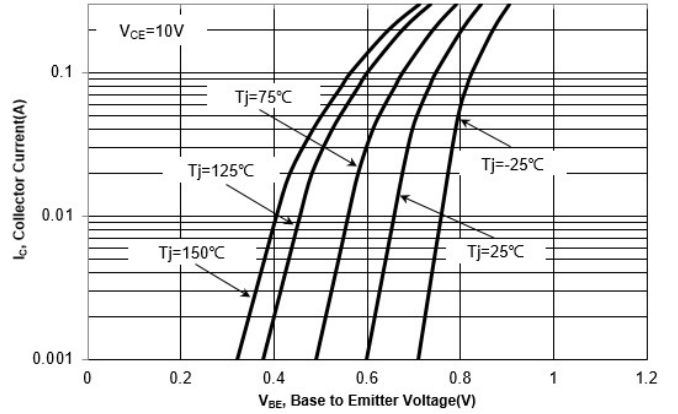


Fig. 3 DC Current Gain vs. Collector Current

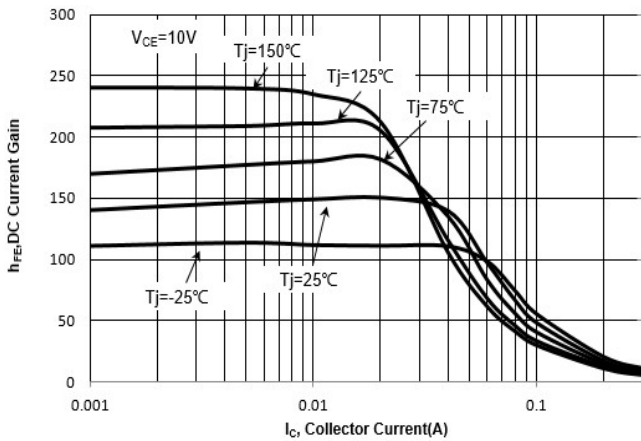
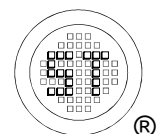
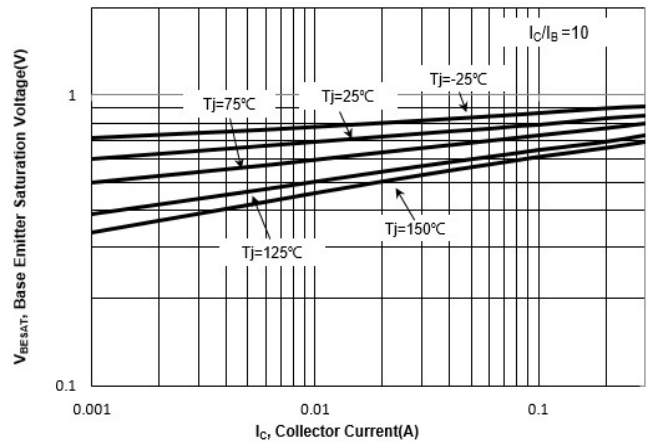


Fig. 4 $V_{BE,SAT}$ vs. Collector Current



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Electrical Characteristics Curves

Fig. 5 V_{CESAT} vs. Collector Current

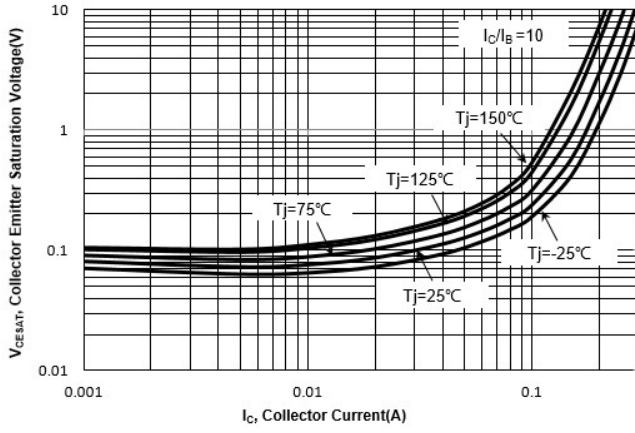


Fig. 6 Output Capacitance

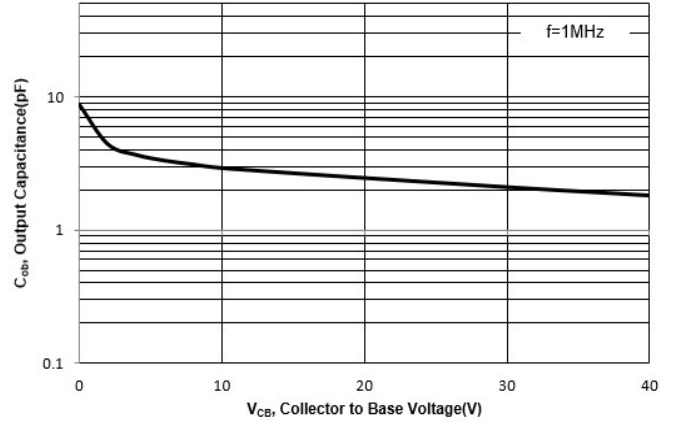
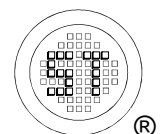
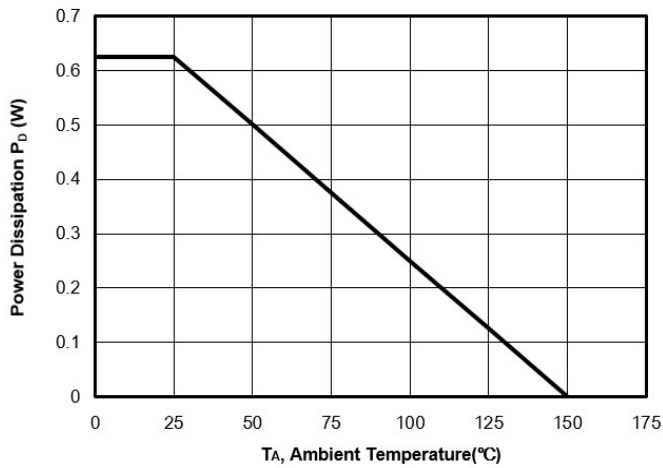


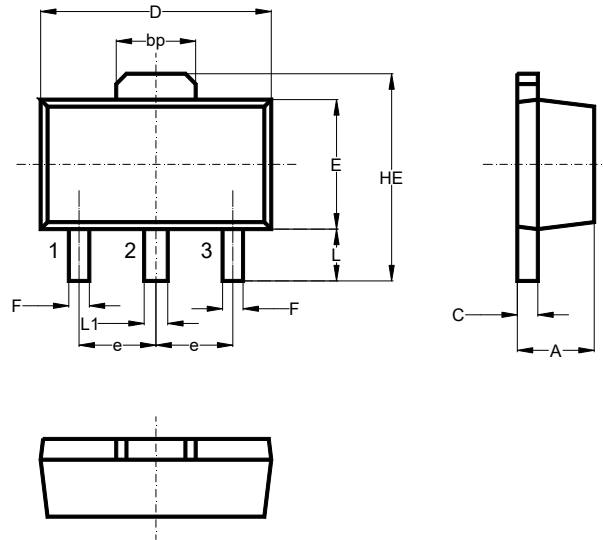
Fig. 7 Power Derating Curve



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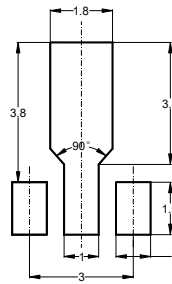
Package Outline (Dimensions in mm)

SOT-89



Unit	A	bp	C	D	E	F	HE	e	L	L1
mm	1.6	1.60	0.5	4.6	2.6	0.45	4.25	1.5	1.05	0.51
	1.4	1.50	0.3	4.4	2.4	0.35	3.75	typ.	0.95	0.41

Recommended Soldering Footprint

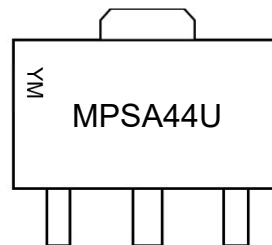


Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
SOT-89	12	8 ± 0.1	0.315 ± 0.004	178	7	1,000
				330	13	4,000

Marking information

" MPSA44U " = Part No.
 "YM" = Date Code Marking
 "Y" = Year
 "M" = Month
 Font type: Arial



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