

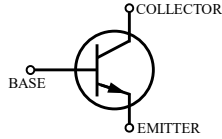
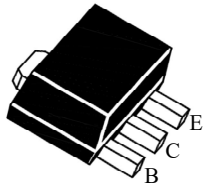


MPSA42C3H

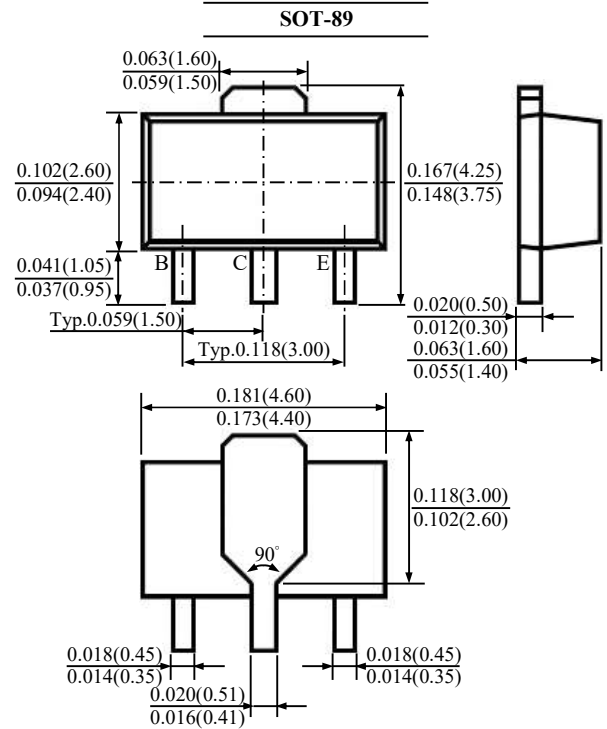
NPN TRANSISTOR

FEATURES

· Suffix "H" indicates Halogen-free parts, ex. MPSA42C3H



B	Base
C	Collector
E	Emitter



Dimension in inches and (millimeters)

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	300	V
Collector Emitter Voltage	V_{CEO}	300	V
Emitter Base Voltage	V_{EBO}	6	V
Collector Current	I_C	500	mA
Power Dissipation	P_D	500	mW
Thermal Resistance from Junction to Ambient (Note 1)	$R_{\theta JA}$	250	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

Note :

1. Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.



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

Parameter	Conditions	Symbol	Min.	Max.	Unit
DC Current Gain	$V_{CE}=10\text{V}, I_C=1\text{mA}$	h_{FE}	25	-	
	$V_{CE}=10\text{V}, I_C=10\text{mA}$		40	-	-
	$V_{CE}=10\text{V}, I_C=30\text{mA}$		40	-	
Collector Base Cutoff Current	$V_{CB}=200\text{V}$	I_{CBO}	-	0.1	μA
Emitter Base Cutoff Current	$V_{EB}=6\text{V}$	I_{EBO}	-	0.1	μA
Collector Base Breakdown Voltage	$I_C=100\mu\text{A}$	$V_{(BR)CBO}$	300	-	V
Collector Emitter Breakdown Voltage	$I_C=1\text{mA}$	$V_{(BR)CEO}$	300	-	V
Emitter Base Breakdown Voltage	$I_E=100\mu\text{A}$	$V_{(BR)EBO}$	6	-	V
Collector Emitter Saturation Voltage	$I_C=20\text{mA}, I_B=2\text{mA}$	$V_{CE(sat)}$	-	0.50	V
Base Emitter Saturation Voltage	$I_C=20\text{mA}, I_B=2\text{mA}$	$V_{BE(sat)}$	-	0.90	V
Gain Bandwidth Product	$I_C=10\text{mA}, V_{CE}=20\text{V}, f=100\text{MHz}$	f_T	50	-	MHz
Collector Output Capacit	$V_{CB}=20\text{V}, f=1\text{MHz}$	C_{ob}	-	3	pF



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RATINGS AND CHARACTERISTIC CURVES

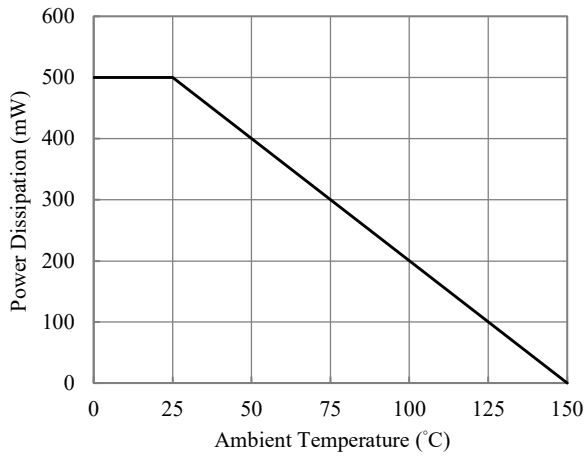


Fig. 1 Power Derating Curves

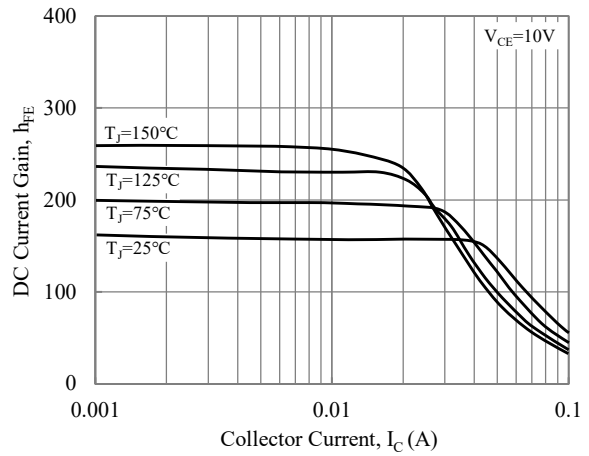


Fig. 2 Current Gain vs. Collector Current

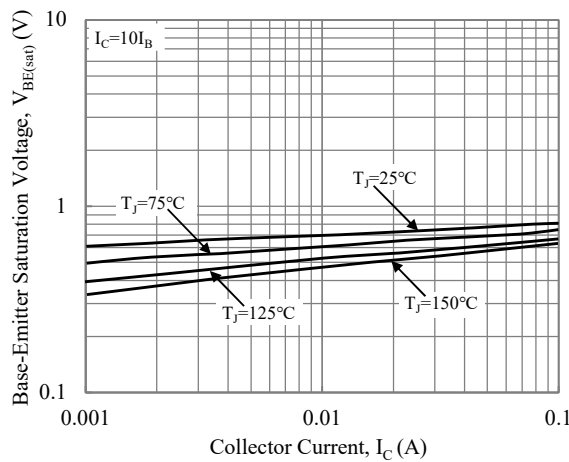


Fig. 3 Base-Emitter Saturation Voltage vs. Collector Current

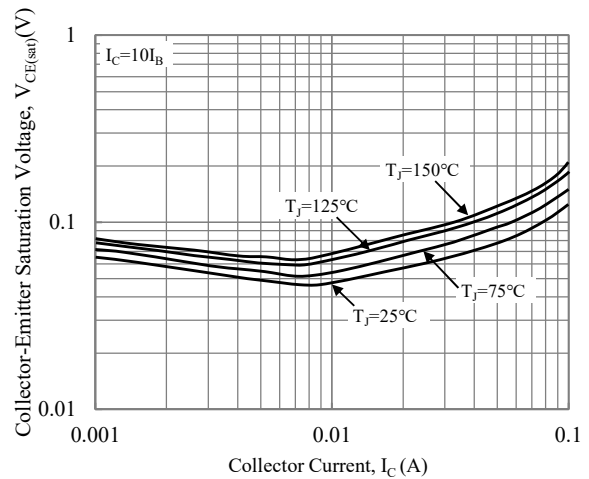


Fig. 4 Collector-Emitter Saturation Voltage vs. Collector Current

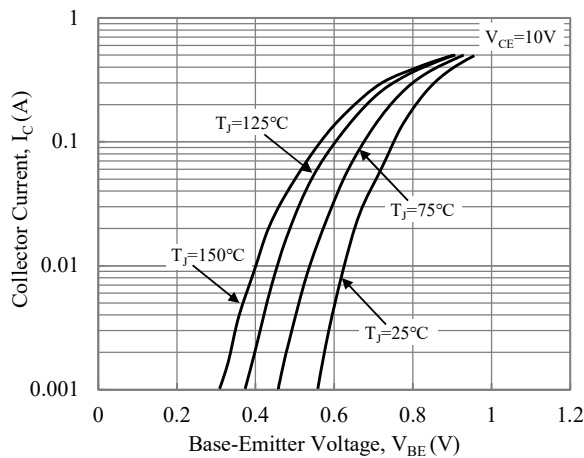


Fig. 5 Base-Emitter Voltage vs. Collector Current

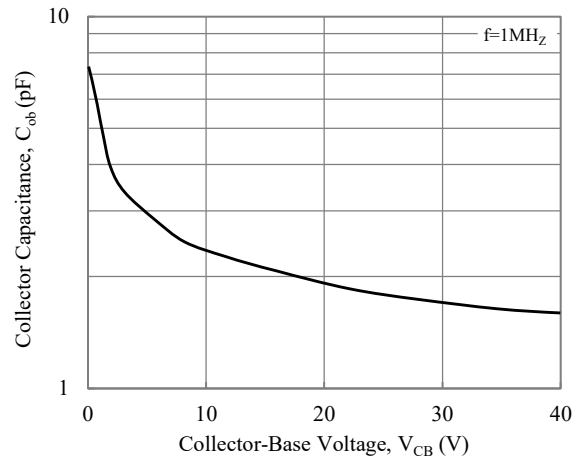


Fig. 6 Capacitance Characteristics



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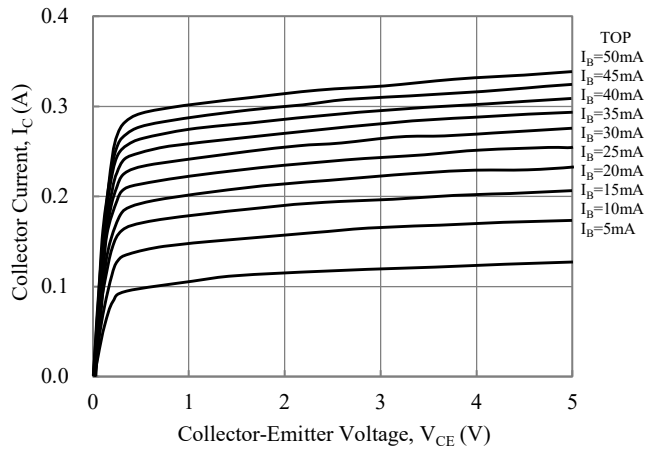


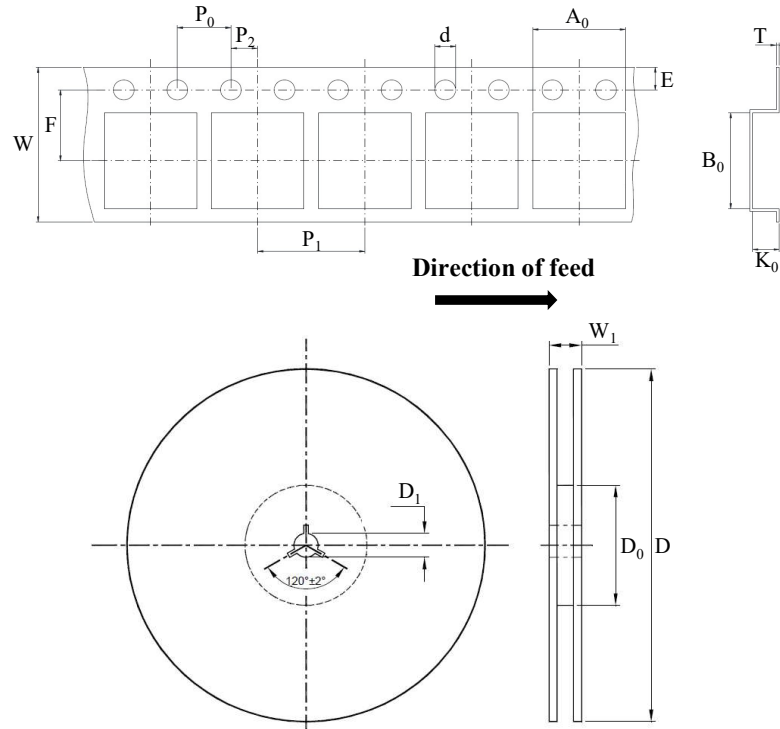
Fig. 7 Output Characteristics Curve



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TAPE & REEL SPECIFICATION



Item	Symbol	SOT-89
Carrier width	A ₀	*
Carrier length	B ₀	
Carrier depth	K ₀	
Sprocket hole	d	1.50 ± 0.10
Reel outside diameter	D	178.00 ± 2.00
Feed hole width	D ₀	100.00
Reel inner diameter	D ₁	16.40 ± 0.50
Sprocket hole position	E	1.75 ± 0.10
Punch hole position	F	5.50 ± 0.10
Sprocket hole pitch	P ₀	4.00 ± 0.10
Punch hole pitch	P ₁	8.00 ± 0.10
Embossment center	P ₂	2.00 ± 0.10
Overall tape thickness	T	0.25 ± 0.05
Tape width	W	12.00 ± 0.20
Reel width	W ₁	MAX. 20.00

Note *: A₀, B₀, and K₀ are determined by component size. The clearance between

ORDER INFORMATION

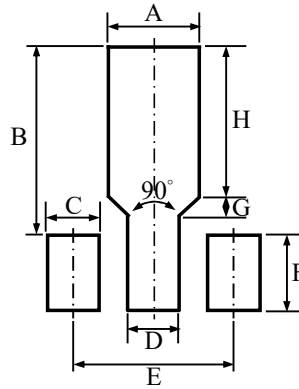
Part Number	Marking Code	Reel Size	Quantity
MPSA42C3H	MPSA42U	7"	1,000



MPSA42C3H

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SUGGESTED SOLDER PAD LAYOUT



Unit:mm

PACKAGE	A	B	C	D	E	F	G	H
SOT-89	1.80	3.80	1.00	1.00	3.00	1.50	0.40	3.00