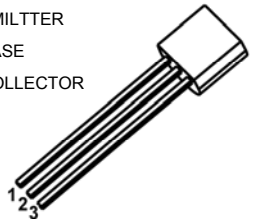
GOOD-ARK
SEMICONDUCTOR

MPSA42
NPN Transistor

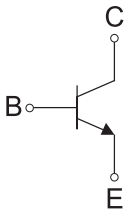
Features

- High voltage

1. EMILTTER
2. BASE
3. COLLECTOR



TO-92



Schematic Diagram

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	310	V
Collector-Emitter Voltage	V_{CEO}	305	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current-Continuous	I_C	200	mA
Collector Current-Pulsed	I_{CM}	500	mA
Collector Power Dissipation	P_C	625	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	200	°C/W
Operation Junction and Storage Temperature Range	T_J, T_{stg}	-55 to +150	°C

Electrical Characteristics (T_A=25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=100uA, I_E=0	310	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA, I_B=0	305	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=100μA, I_C=0	5	-	-	V
Collector Cut-Off Current	I_{CBO}	V_{CB}=200V, I_E=0	-	-	0.25	μA
Emitter Cut-Off Current	I_{EBO}	V_{EB}=5V, I_C=0	-	-	0.1	μA
DC Current Gain	$h_{FE(1)}$	V_{CE}=10V, I_C=1mA	60	-	-	-
	$h_{FE(2)}$	V_{CE}=10V, I_C=10mA	80	-	250	-
	$h_{FE(3)}$	V_{CE}=10V, I_C=30mA	75	-	-	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=20mA, I_B=2mA	-	-	0.2	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=20mA, I_B=2mA	-	-	0.9	V
Transition Frequency	f_T	V_{CE}=20V, I_C=10mA, F=30MHz	50	-	-	MHz

Classification of $h_{FE(2)}$

Rank	A	B	C
Range	80-100	100-200	200-250

Typical Characteristic Curves

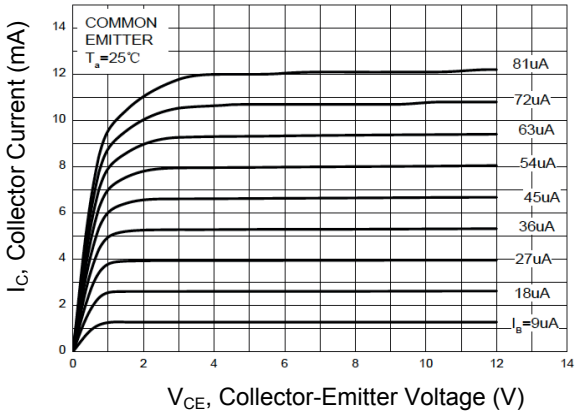


Figure 1. I_C — V_{CE}

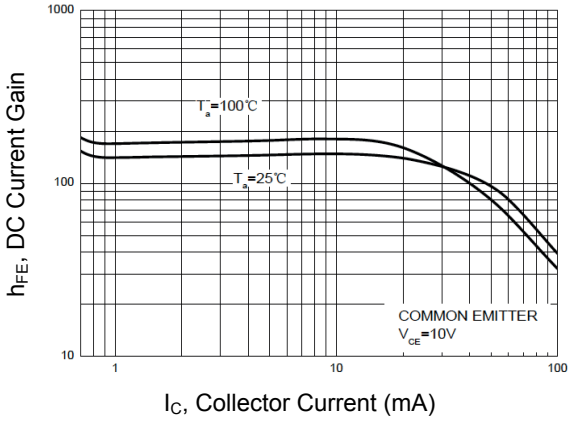


Figure 2. h_{FE} — I_C

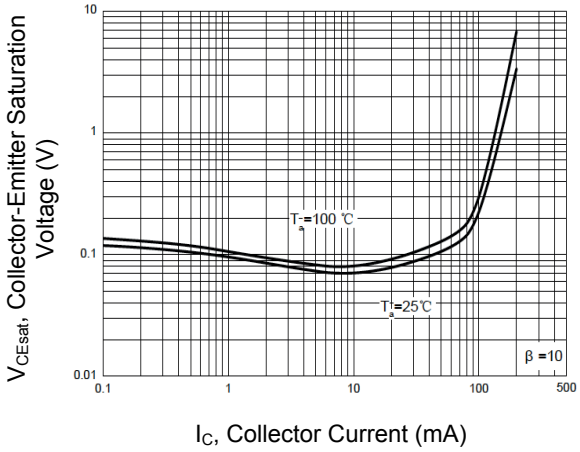


Figure 3. V_{CEsat} — I_C

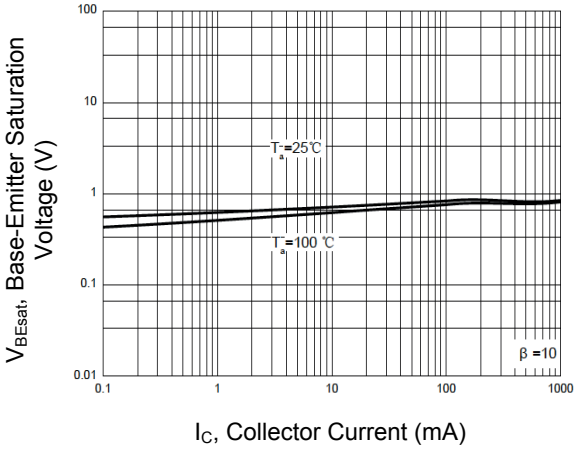


Figure 4. V_{BEsat} — I_C

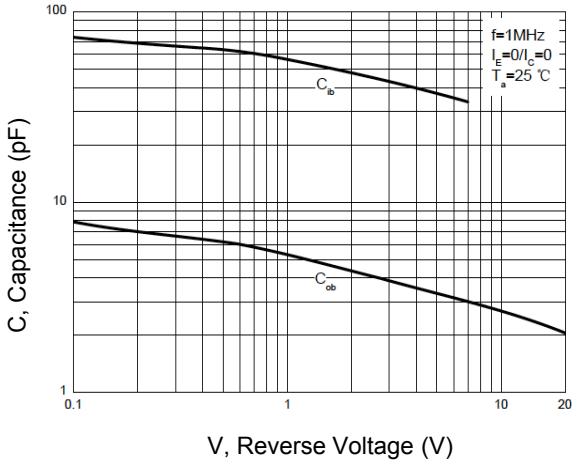


Figure 5. C_{ob}/C_{ib} — V_{CB}/V_{EB}

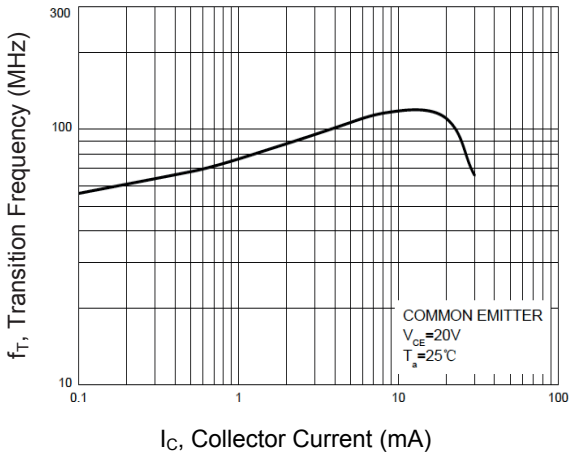


Figure 6. f_T — I_C

Typical Characteristic Curves

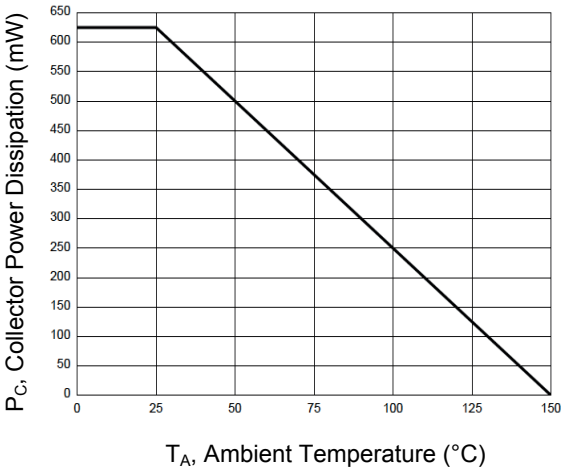
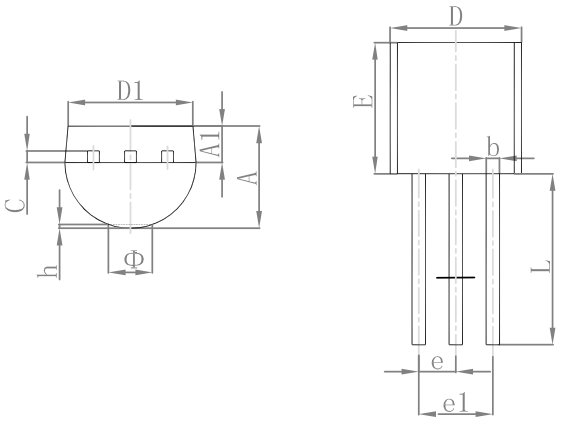


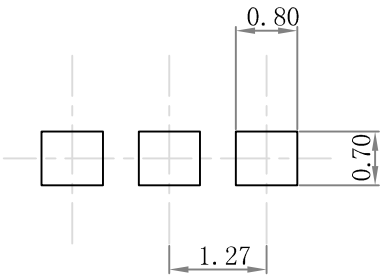
Figure 7. P_C — T_A

Package Outline Dimensions (TO-92)



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.300	4.700	0.169	0.185
D1	3.430	-	0.135	-
E	4.300	4.700	0.169	0.185
e	1.270 TYP		0.050 TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Φ	-	1.600	-	0.063
h	0.000	0.380	0.000	0.015

Recommended Pad Layout



Note:
1. Controlling dimension: in millimeters
2. General tolerance: ±0.05mm
3. The pad layout is for reference purposes only

Order Information

Device	Package	Marking	Quantity	HSF Status
MPSA42-A	TO-92	A42A	2,000pcs / Box	RoHS Compliant
MPSA42-B	TO-92	A42B	2,000pcs / Box	RoHS Compliant
MPSA42-C	TO-92	A42C	2,000pcs / Box	RoHS Compliant