



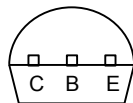
Micro Commercial Components
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MPSA42 THRU MPSA43

Features

- Through Hole Package
- 150°C Junction Temperature

Pin Configuration
 Bottom View



NPN Silicon High Voltage Transistor 625mW

Mechanical Data

- Case: TO-92, Molded Plastic
- Marking:

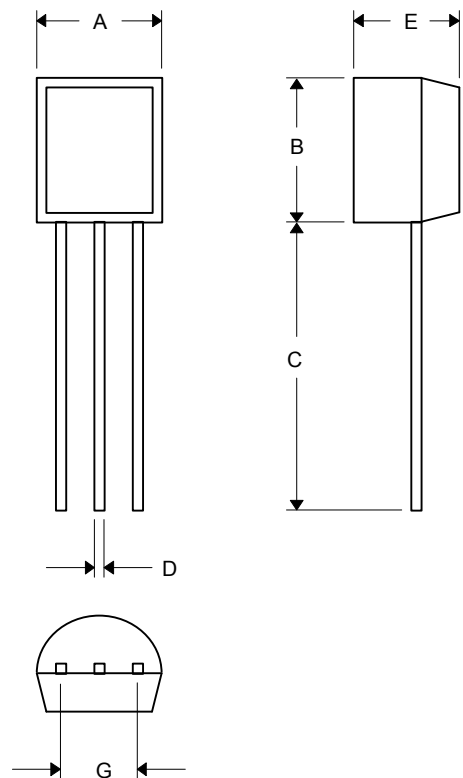
MPSA42 ----- A42

MPSA43 ----- A43

Maximum Ratings @ 25°C Unless Otherwise Specified

Charateristic	Symbol	Value	Unit
Collector-Emitter Voltage MPSA42 MPSA43	V_{CEO}	300 200	V
Collector-Base Voltage MPSA42 MPSA43	V_{CBO}	300 200	V
Emitter-Base Voltage MPSA42 MPSA43	V_{EBO}	5.0	V
Collector Current(DC)	I_C	300	mA
Power Dissipation@ $T_A=25^\circ\text{C}$	P_d	625 5.0	mW mW/°C
Power Dissipation@ $T_C=25^\circ\text{C}$	P_d	1.5 12	W mW/°C
Thermal Resistance, Junction to Ambient Air	$R_{\theta JA}$	200	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	83.3	°C/W
Operating & Storage Temperature	T_j, T_{STG}	-55~150	°C

TO-92



DIM	DIMENSIONS				NOTE
	INCHES		MM		
A	.175	.185	4.45	4.70	
B	.175	.185	4.46	4.70	
C	.500	---	12.7	---	
D	.016	.020	0.41	0.63	
E	.135	.145	3.43	3.68	
G	.095	.105	2.42	2.67	

MPSA42 thru MPSA43

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit	
OFF CHARACTERISTICS					
Collector–Emitter Breakdown Voltage ⁽¹⁾ (I _C = 1.0 mA _{dc} , I _B = 0)	MPSA42 MPSA43	V _{(BR)CEO}	300 200	— —	V _{dc}
Collector–Base Breakdown Voltage (I _C = 100 μA _{dc} , I _E = 0)	MPSA42 MPSA43	V _{(BR)CBO}	300 200	— —	V _{dc}
Emitter–Base Breakdown Voltage (I _E = 10 μA _{dc} , I _C = 0)		V _{(BR)EBO}	5.0	—	V _{dc}
Collector Cutoff Current (V _{CB} = 200 V _{dc} , I _E = 0) (V _{CB} = 160 V _{dc} , I _E = 0)	MPSA42 MPSA43	I _{CBO}	— —	0.25 0.1	μA _{dc}
Emitter Cutoff Current (V _{EB} = 3.0 V _{dc} , I _C = 0) (V _{EB} = 4.0 V _{dc} , I _C = 0)	MPSA42 MPSA43	I _{EBO}	— —	0.25 0.1	μA _{dc}

ON CHARACTERISTICS⁽¹⁾

DC Current Gain (I _C = 1.0 mA _{dc} , V _{CE} = 10 V _{dc}) (I _C = 10 mA _{dc} , V _{CE} = 10 V _{dc}) (I _C = 50 mA _{dc} , V _{CE} = 10 V _{dc})		h _{FE}	25 80 25	— —	250
Collector–Emitter Saturation Voltage (I _C = 20 mA _{dc} , I _B = 2.0 mA _{dc})	MPSA42 MPSA43	V _{CE(sat)}	— —	0.5 0.4	V _{dc}
Base–Emitter Saturation Voltage (I _C = 20 mA _{dc} , I _B = 2.0 mA _{dc})		V _{BE(sat)}	—	0.9	V _{dc}

SMALL–SIGNAL CHARACTERISTICS

Current–Gain — Bandwidth Product (I _C = 10 mA _{dc} , V _{CE} = 5 V _{dc} , f = 30MHz)		f _T	50	—	MHz
Collector–Base Capacitance (V _{CB} = 20 V _{dc} , I _E = 0, f = 1.0 MHz)	MPSA42 MPSA43	C _{cb}	— —	3.0 4.0	pF

1. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

MPSA42 thru MPSA43

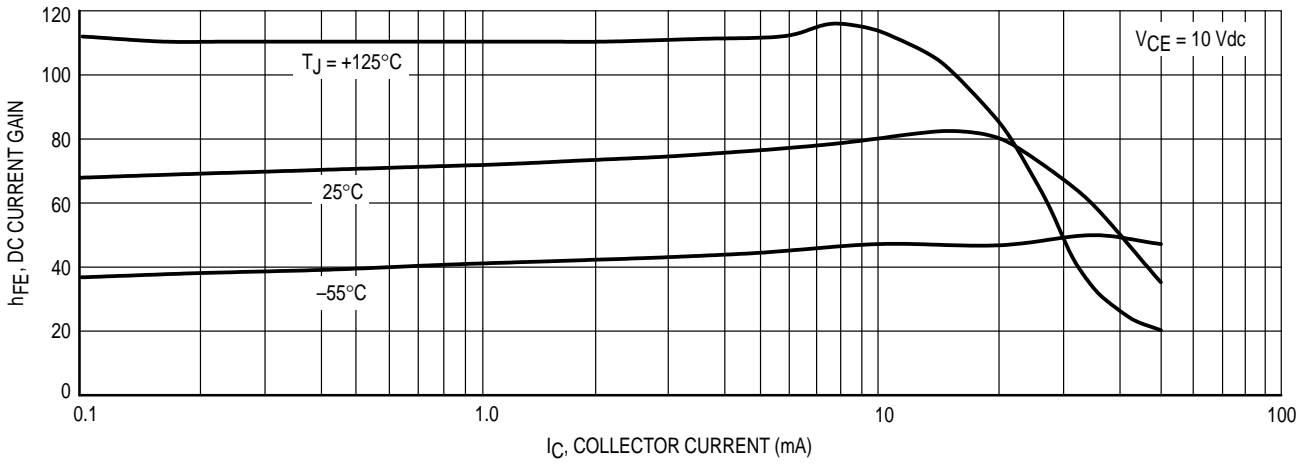


Figure 1. DC Current Gain

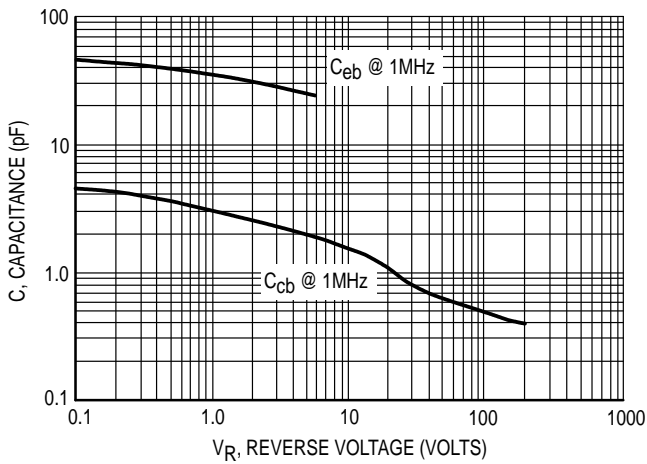


Figure 2. Capacitance

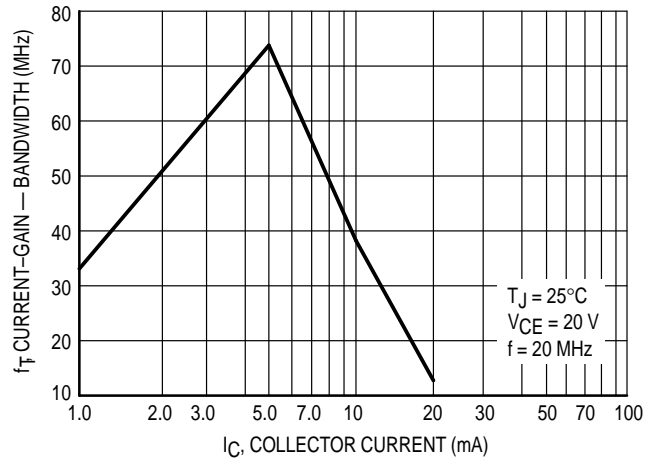


Figure 3. Current-Gain - Bandwidth

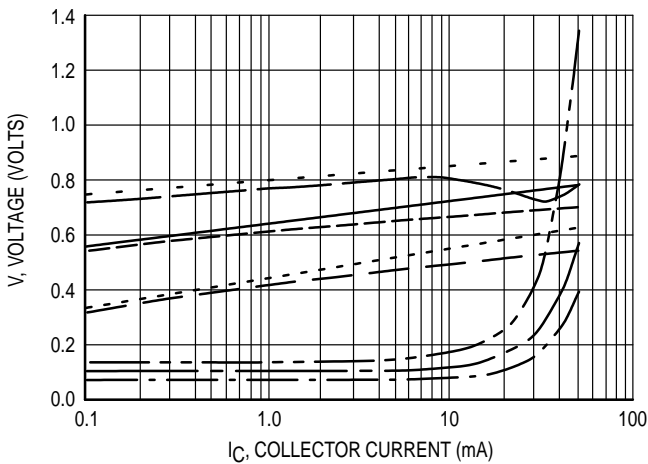


Figure 4. "ON" Voltages

- $V_{CE(sat)}$ @ 25°C , $I_C/I_B = 10$
- $V_{CE(sat)}$ @ 125°C , $I_C/I_B = 10$
- $V_{CE(sat)}$ @ -55°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ 25°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ 125°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ -55°C , $I_C/I_B = 10$
- $V_{BE(on)}$ @ 25°C , $V_{CE} = 10 \text{ V}$
- $V_{BE(on)}$ @ 125°C , $V_{CE} = 10 \text{ V}$
- $V_{BE(on)}$ @ -55°C , $V_{CE} = 10 \text{ V}$