



Micro Commercial Components
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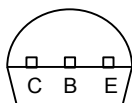
Fax: (818) 701-4939

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:

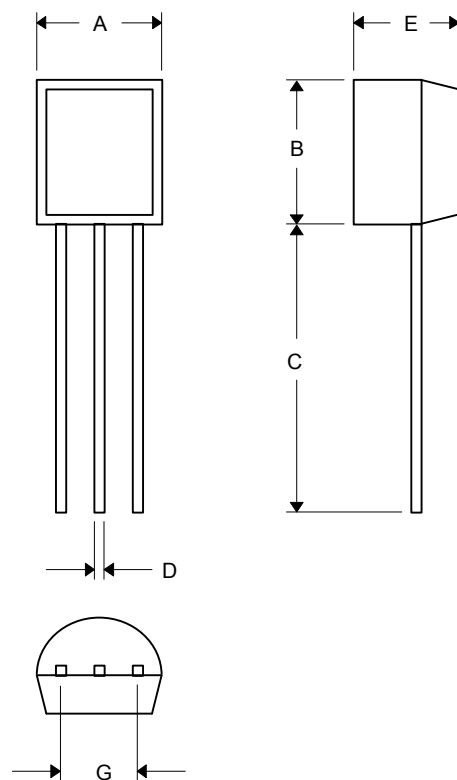
MPSA42 ----- A42

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



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
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 ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage ⁽¹⁾ ($I_C = 1.0\text{ mAdc}$, $I_E = 0$)	MPSA42 MPSA43	$V_{(BR)CEO}$	300 200	— —	Vdc
Collector–Base Breakdown Voltage ($I_C = 100\text{ }\mu\text{Adc}$, $I_E = 0$)	MPSA42 MPSA43	$V_{(BR)CBO}$	300 200	— —	Vdc
Emitter–Base Breakdown Voltage ($I_E = 10\text{ }\mu\text{Adc}$, $I_C = 0$)		$V_{(BR)EBO}$	5.0	—	Vdc
Collector Cutoff Current ($V_{CB} = 200\text{ Vdc}$, $I_E = 0$) ($V_{CB} = 160\text{ Vdc}$, $I_E = 0$)	MPSA42 MPSA43	I_{CBO}	— —	0.25 0.1	μAdc
Emitter Cutoff Current ($V_{EB} = 3.0\text{ Vdc}$, $I_C = 0$) ($V_{EB} = 4.0\text{ Vdc}$, $I_C = 0$)	MPSA42 MPSA43	I_{EBO}	— —	0.25 0.1	μAdc

ON CHARACTERISTICS⁽¹⁾

DC Current Gain ($I_C = 1.0\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$) ($I_C = 10\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$) ($I_C = 50\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$)		h_{FE}	25 80 25	— —	250
Collector–Emitter Saturation Voltage ($I_C = 20\text{ mAdc}$, $I_B = 2.0\text{ mAdc}$)	MPSA42 MPSA43	$V_{CE(sat)}$	— —	0.5 0.4	Vdc
Base–Emitter Saturation Voltage ($I_C = 20\text{ mAdc}$, $I_B = 2.0\text{ mAdc}$)		$V_{BE(sat)}$	—	0.9	Vdc

SMALL–SIGNAL CHARACTERISTICS

Current–Gain — Bandwidth Product ($I_C = 10\text{ mAdc}$, $V_{CE} = 5\text{ Vdc}$, $f = 30\text{ MHz}$)		f_T	50	—	MHz
Collector–Base Capacitance ($V_{CB} = 20\text{ Vdc}$, $I_E = 0$, $f = 1.0\text{ MHz}$)	MPSA42 MPSA43	C_{cb}	— —	3.0 4.0	pF

1. Pulse Test: Pulse Width $\leq 300\text{ }\mu\text{s}$, Duty Cycle $\leq 2.0\%$.

MPSA42 thru MPSA43

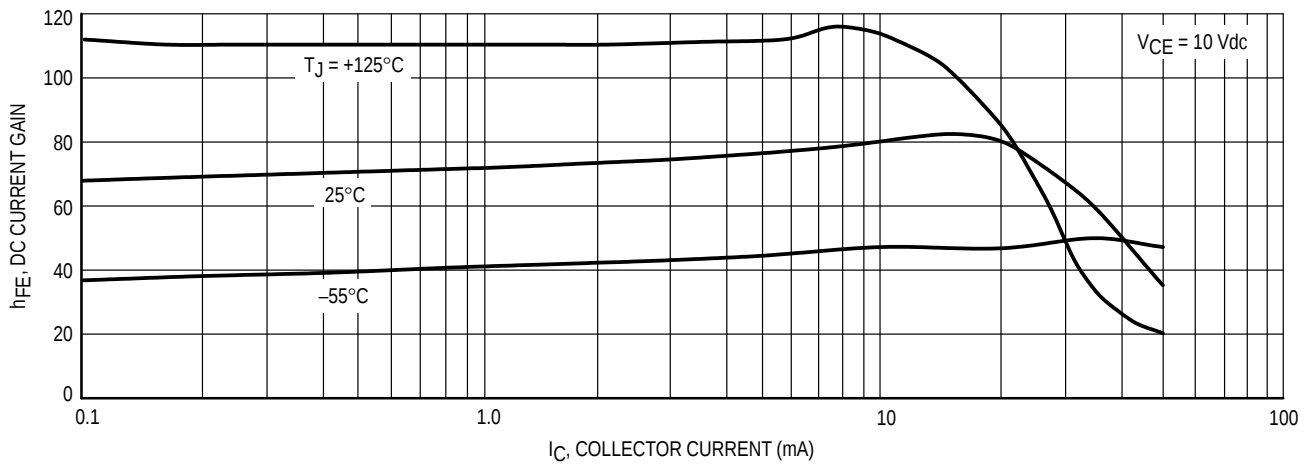


Figure 1. DC Current Gain

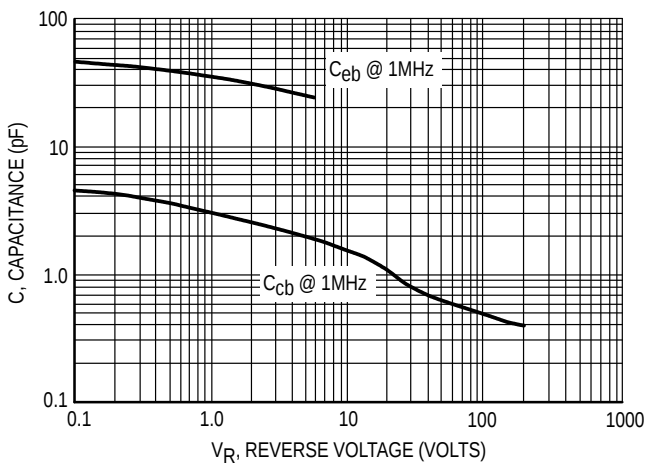


Figure 2. Capacitance

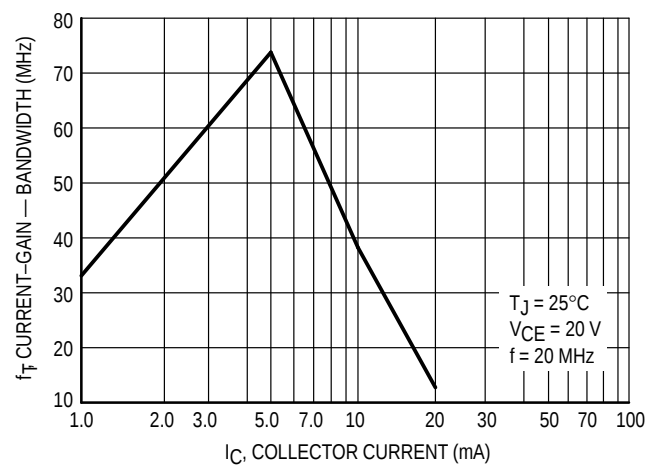


Figure 3. Current-Gain - Bandwidth

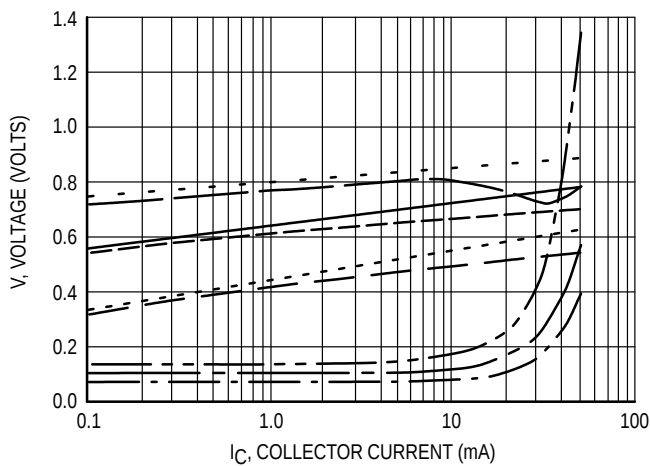


Figure 4. "ON" Voltages

——— $V_{CE(sat)}$ @ 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 , $V_{CE} = 10 \text{ V}$