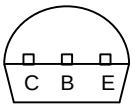
MPSA42
THRU
MPSA43

NPN Silicon High Voltage Transistor 625mW

Features

- Through Hole Package
- 150°C Junction Temperature

Pin Configuration
Bottom View



Mechanical Data

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

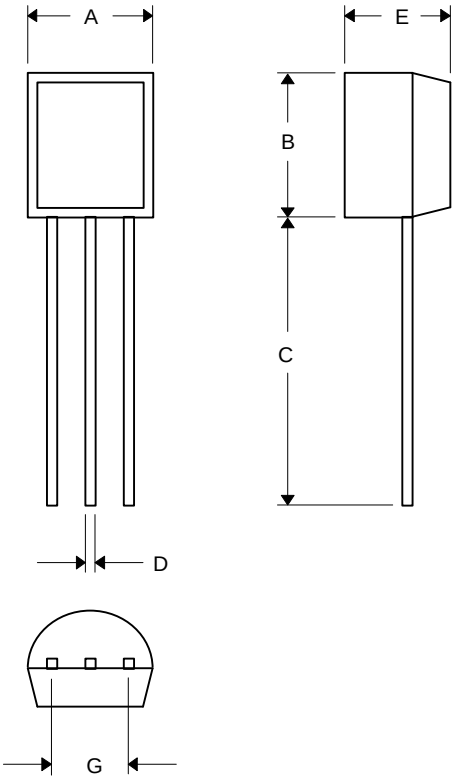
  MPSA42 --------- A42

  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°C		P_d	625 5.0	mW mW/°C
Power Dissipation@T_C=25°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					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
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)		$V_{(BR)CEO}$			Vdc
(I_C = 1.0 mAdc, I_B = 0)	MPSA42		300	—	
	MPSA43		200	—	
Collector–Base Breakdown Voltage		$V_{(BR)CBO}$			Vdc
(I_C = 100 μAdc, I_E = 0)	MPSA42		300	—	
	MPSA43		200	—	
Emitter–Base Breakdown Voltage		$V_{(BR)EBO}$	5.0	—	Vdc
(I_E = 10 μAdc, I_C = 0)					
Collector Cutoff Current		I_{CBO}			μAdc
(V_{CB} = 200 Vdc, I_E = 0)	MPSA42		—	0.25	
(V_{CB} = 160 Vdc, I_E = 0)	MPSA43		—	0.1	
Emitter Cutoff Current		I_{EBO}			μAdc
(V_{EB} = 3.0 Vdc, I_C = 0)	MPSA42		—	0.25	
(V_{EB} = 4.0 Vdc, I_C = 0)	MPSA43		—	0.1	
ON CHARACTERISTICS(1)					
DC Current Gain		h_{FE}			
(I_C = 1.0 mAdc, V_{CE} = 10 Vdc)			25	—	
(I_C = 10 mAdc, V_{CE} = 10 Vdc)			80		250
(I_C = 50 mAdc, V_{CE} = 10 Vdc)			25	—	
Collector–Emitter Saturation Voltage		$V_{CE(sat)}$			Vdc
(I_C = 20 mAdc, I_B = 2.0 mAdc)	MPSA42		—	0.5	
	MPSA43		—	0.4	
Base–Emitter Saturation Voltage		$V_{BE(sat)}$	—	0.9	Vdc
(I_C = 20 mAdc, I_B = 2.0 mAdc)					
SMALL–SIGNAL CHARACTERISTICS					
Current–Gain — Bandwidth Product		f_T	50	—	MHz
(I_C = 10 mAdc, V_{CE} = 5 Vdc, f = 30MHz)					
Collector–Base Capacitance		C_{cb}			pF
(V_{CB} = 20 Vdc, I_E = 0, f = 1.0 MHz)	MPSA42		—	3.0	
	MPSA43		—	4.0	

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

MPSA42 thru MPSA43

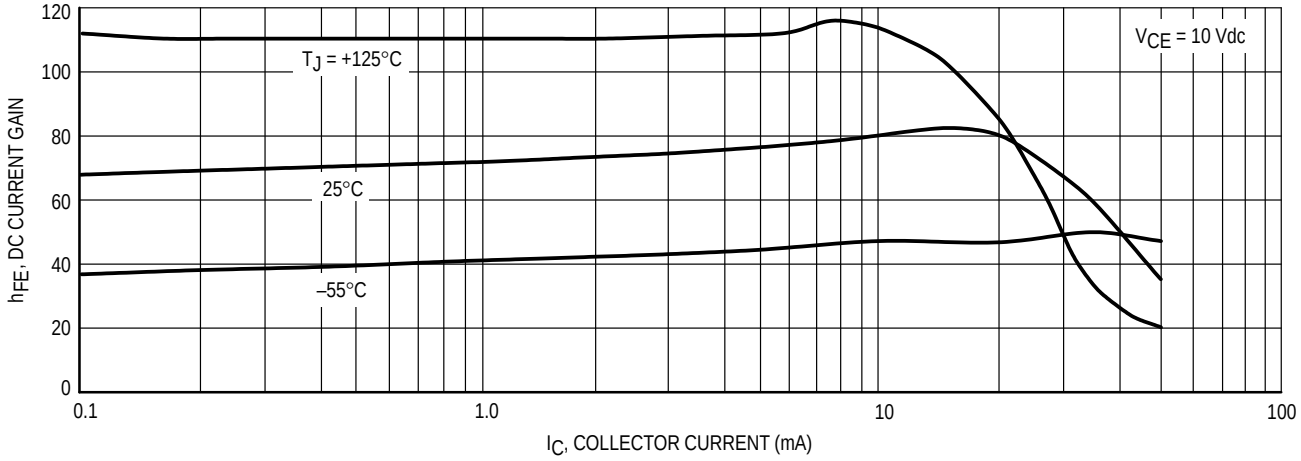


Figure 1. DC Current Gain

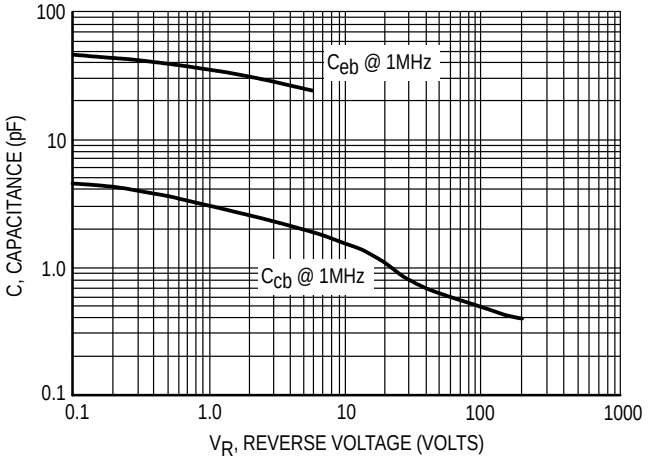


Figure 2. Capacitance

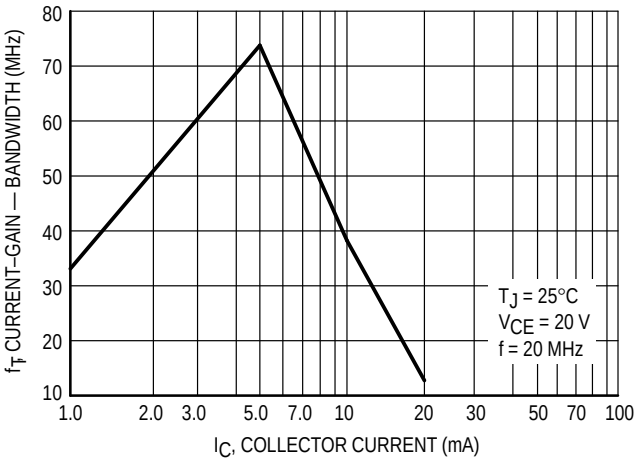
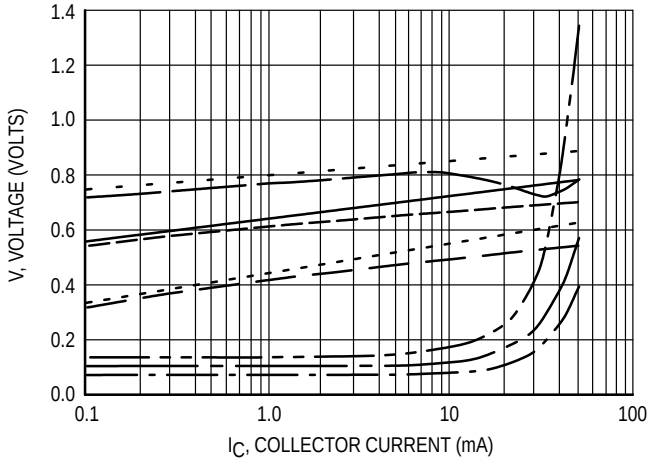


Figure 3. Current–Gain – Bandwidth



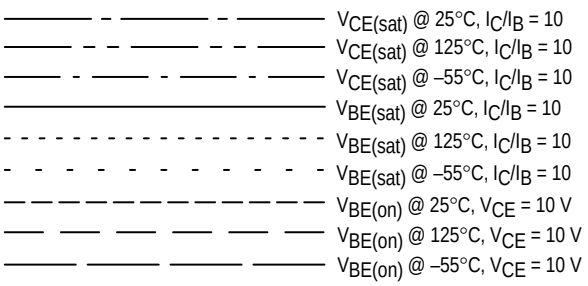


Figure 4. ”ON” Voltages