

# MPSA42

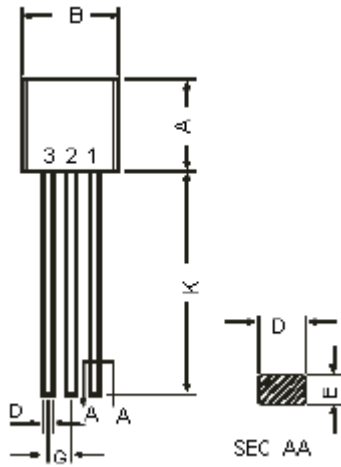
## High Voltage Transistor



### Features:

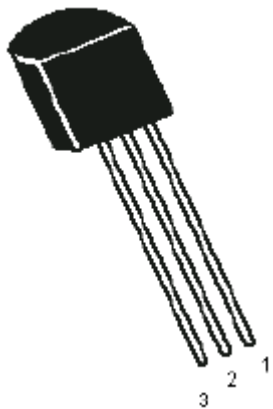
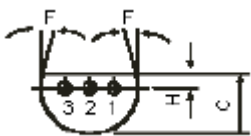
- Devices with breakdown voltages of 160V minimum, for applications requiring relatively low collector current, such as lamp drivers and neon tubes.
- NPN silicon planar epitaxial transistor.
- Complementary high Voltage Transistor.

### TO-92 Plastic Package



Dimensions	Minimum	Maximum
A	4.32	5.33
B	4.45	5.20
C	3.18	4.19
D	0.41	0.55
E	0.35	0.50
F	5°	
G	1.14	1.40
H		1.53
K	12.70	-

Dimensions : Millimetres



### Pin Configuration:

1. Collector
2. Base
3. Emitter

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### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ unless otherwise specified)

Parameters	Symbol	Value	Units
Collector Emitter Voltage	$V_{CEO}$	300	V
Collector Base Voltage	$V_{CBO}$		
Emitter Base Voltage	$V_{EBO}$		
Collector Current Continuous	$I_C$	500	mA
Total Device Dissipation at $T_a = 25^\circ\text{C}$ Derate Above $25^\circ\text{C}$	$P_D$	625	mW mW/ $^\circ\text{C}$
Total Device Dissipation at $T_c = 25^\circ\text{C}$ Derate Above $25^\circ\text{C}$		5.0	
		1.5	
		12	
Operating and Storage Junction Temperature Range	$T_j, T_{stg}$	-55 to +150	$^\circ\text{C}$
<b>Thermal Resistance</b>			
Junction to Ambient	$R_{th(j-a)}$	200	$^\circ\text{C/W}$
Junction to Case	$R_{th(j-c)}$	83.3	

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

Description	Symbol	Test Condition	Minimum	Maximum	Units
Collector Emitter Voltage	$V_{CEO}$	$I_C = 1.0\text{mA}, I_B = 0$	300	-	V
Collector Base Voltage	$V_{CBO}$	$I_C = 100\mu\text{A}, I_E = 0$		-	
Emitter Base Voltage	$V_{EBO}$	$I_E = 100\mu\text{A}, I_C = 0$		6.0	
Collector-Cut off Current	$I_{CBO}$	$V_{CB} = 200\text{V}, I_E = 0$	-	0.1	$\mu\text{A}$
Emitter-Cut off Current	$I_{EBO}$	$V_{BE} = 6.0\text{V}, I_C = 0$	-		
Collector Emitter Saturation Voltage	$V_{CE(sat)}^*$	$I_C = 20\text{mA}, I_B = 2.0\text{mA}$	-	0.5	V
Base Emitter Saturation Voltage	$V_{BE(sat)}^*$		-	0.9	
DC Current Gain	$h_{FE}^*$	$V_{CE} = 10\text{V}, I_C = 1.0\text{mA}$ $V_{CE} = 10\text{V}, I_C = 10\text{mA}$ $V_{CE} = 10\text{V}, I_C = 30\text{mA}$	25 40 40	-	-
<b>Dynamic Characteristics</b>					
Current Gain-Bandwidth Product	$f_T$	$I_C = 10\text{mA}, V_{CE} = 20\text{V},$ $f = 100\text{MHz}$	50	-	MHz
Collector Base Capacitance	$C_{cb}$	$I_E = 0, V_{CB} = 20\text{V},$ $f = 1.0\text{MHz}$	-	3.0	pF

\*Pulse Condition : Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .



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### Specifications

$V_{CEO}$ Maximum (V)	$I_C$ (av) Maximum (A)	$h_{FE}$ Minimum at $I_C = 10\text{mA}$	$V_{CE}$ (Sat) Maximum (V) at $I_C = 20\text{mA}$	$f_T$ Minimum (MHz)	$P_{tot}$ at $25^\circ\text{C}$ (mW)	Package and Pin Out	Type	Part Number
300	0.5	40	0.5	50	625	TO-92	NPN	MPSA42



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