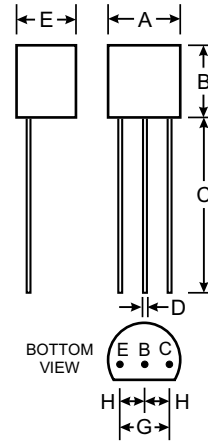


### Features

- Epitaxial Planar Die Construction
- -300V Collector-Emitter Voltage
- Complimentary NPN Type Available (MPSA42)

### Mechanical Data

- Case: TO-92, Plastic
- Leads: Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking: Type Number
- Weight: 0.18 grams (approx.)



TO-92		
Dim	Min	Max
A	4.32	4.83
B	4.32	4.78
C	12.50	15.62
D	0.36	0.56
E	3.15	3.94
G	2.29	2.79
H	1.14	1.40
All Dimensions in mm		

### Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	MPSA42	Unit
Collector-Base Voltage	$V_{CBO}$	-300	V
Collector-Emitter Voltage	$V_{CEO}$	-300	V
Emitter-Base Voltage	$V_{EBO}$	-5.0	V
Collector Current - Continuous	$I_C$	-100	mA
Power Dissipation (Note 1)	$P_d$	625	mW
Thermal Resistance, Junction to Ambient (Note 1)	$R_{\theta JA}$	200	K/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	83.3	K/W
Operating and Storage Temperature Range	$T_j, T_{STG}$	-55 to +150	$^\circ\text{C}$

### Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
Collector to Emitter Breakdown Voltage (Note 2)	$V_{(BR)CEO}$	-300	—	V	$I_C = -1.0\text{mA}, I_B = 0$
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	-300	—	V	$I_C = -100\ \mu\text{A}, I_E = 0$
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	-5.0	—	V	$I_E = -100\ \mu\text{A}, I_C = 0$
Collector Cutoff Current	$I_{CBO}$	—	-0.25	$\mu\text{A}$	$V_{CB} = -200\text{V}, I_E = 0$
Emitter Cutoff Current	$I_{EBO}$	—	-0.10	$\mu\text{A}$	$V_{EB} = -3.0\text{V}, I_C = 0$
DC Current Gain (Note 2)	$h_{FE}$	25 40 25	—	—	$I_C = -1.0\text{mA}, V_{CE} = -10\text{V}$ $I_C = -10\text{mA}, V_{CE} = -10\text{V}$ $I_C = -30\text{mA}, V_{CE} = -10\text{V}$
Collector-Emitter Saturation Voltage (Note 2)	$V_{CE(SAT)}$	—	-0.5	V	$I_C = -20\text{mA}, I_B = -2.0\text{mA}$
Base-Emitter Saturation Voltage (Note 2)	$V_{BE(SAT)}$	—	-0.9	V	$I_C = -20\text{mA}, I_B = -2.0\text{mA}$
Current Gain Bandwidth Product	$f_T$	50	—	MHz	$I_C = -10\text{mA}, V_{CE} = -20\text{V}, f = 100\text{MHz}$
Collector to Base Capacitance	$C_{cb}$	—	6.0	pF	$V_{CB} = -20\text{V}, I_E = 0, f = 1.0\text{MHz}$

- Notes:
1. Valid provided that leads at a distance of 2.0mm from body are kept at specified ambient.
  2. Pulse Test: Pulse width  $\leq 300\ \mu\text{s}$ , duty cycle  $\leq 2\%$ .