



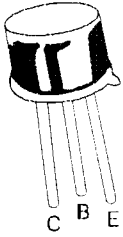
# SOLID STATE INC.

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## NPN SILICON POWER SWITCHING TRANSISTOR

2N3110



TO-39  
Metal Can Package

For AF Medium Power Drivers and Outputs, as well as for Switching Applications

### ABSOLUTE MAXIMUM RATINGS

DESCRIPTION	SYMBOL	VALUE	UNITS
Collector Base Voltage	$V_{CBO}$	80	V
Collector Emitter Voltage	$V_{CEO}$	40	V
Emitter Base Voltage	$V_{EBO}$	7	V
Collector Current	$I_C$	1	A
Power Dissipation @ $T_c \leq 25^\circ\text{C}$	$P_D$	5	W
Power Dissipation @ $T_a \leq 25^\circ\text{C}$	$P_D$	800	mW
Operating and Storage Junction Temperature Range	$T_J, T_{slg}$	- 65 to +200	$^\circ\text{C}$

### THERMAL CHARACTERISTICS

Junction to Ambient in free air	$R_{th(j-a)}$	219	$^\circ\text{C/W}$
Junction to Case	$R_{th(j-c)}$	35	$^\circ\text{C/W}$

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

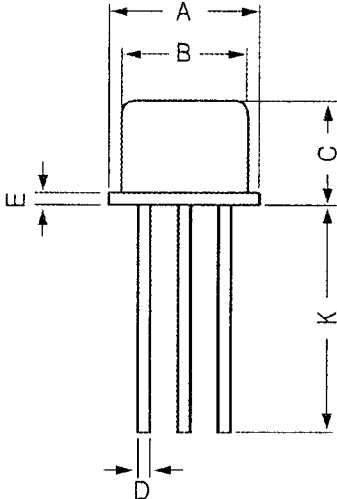
DESCRIPTION	SYMBOL	TEST CONDITION	MIN	MAX	UNITS
Collector Base Voltage	$V_{CBO}$	$I_C=0.1\text{mA}, I_E=0$	80		V
Collector Emitter Voltage	* $V_{CEO}$	$I_C=30\text{mA}, I_B=0$	40		V
Emitter Base Voltage	$V_{EBO}$	$I_E=0.1\text{mA}, I_C=0$	7		V
Collector Cut off Current	$I_{CES}$	$V_{CE}=60\text{V}, V_{BE}=0$		10	nA
Collector Cut off Current	$I_{CBO}$	$V_{CB}=60\text{V}, I_E=0, T_a=150^\circ\text{C}$		10	$\mu\text{A}$
Emitter Cut off Current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0$		10	nA
Collector Emitter Saturation Voltage	* $V_{CE(sat)}$	$I_C=150\text{mA}, I_B=15\text{mA}$ $I_C=1\text{A}, I_B=0.1\text{A}$		0.25 1.0	V V
Base Emitter Saturation Voltage	* $V_{BE(sat)}$	$I_C=150\text{mA}, I_B=15\text{mA}$ $I_C=1\text{A}, I_B=0.1\text{A}$		1.1 2.0	V V
DC Current Gain	* $h_{FE}$	$I_C=0.1\text{mA}, V_{CE}=10\text{V}$ $I_C=150\text{mA}, V_{CE}=1\text{V}$ $I_C=500\text{mA}, V_{CE}=10\text{V}$ $I_C=150\text{mA}, V_{CE}=10\text{V}, T_a=-55^\circ\text{C}$	20 40 25 15	120	
Transition Frequency	$f_T$	$I_C=50\text{mA}, V_{CE}=10\text{V}$	60		MHz
Collector Base Capacitance	$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$		25	pF
Emitter Base Capacitance	$C_{ib}$	$V_{EB}=0.5\text{V}, I_C=0, f=1\text{MHz}$		80	pF
Noise Figure	NF	$I_C=30\mu\text{A}, V_{CE}=10\text{V}, R_g=1\text{K}\Omega$		7.0	dB
Turn on time	$t_{on}$	$I_C=150\text{mA}, I_{B1}=7.5\text{mA}$		200	ns
Turn off time	$t_{off}$	$I_C=150\text{mA}, I_{B1}=-I_{B2}=7.5\text{mA}$		600	ns

Pulse Width=300 $\mu\text{s}$ , Duty Cycle=1%

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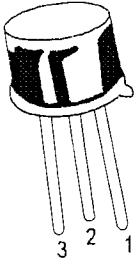
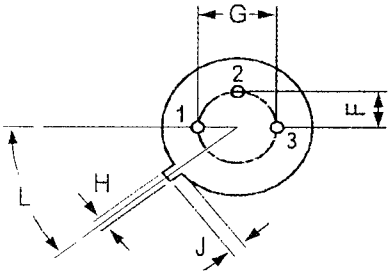
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Metal Can Package

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All dimensions are in mm

DIM	MIN	MAX
A	8.50	9.39
B	7.74	8.50
C	6.09	6.60
D	0.40	0.53
E	—	0.88
F	2.41	2.66
G	4.82	5.33
H	0.71	0.86
J	0.73	1.02
K	12.70	—
L	42 DEG	48 DEG



PIN CONFIGURATION  
1. EMITTER  
2. BASE  
3. COLLECTOR