

NPN 2N3700

SILICON PLANAR EPITAXIAL TRANSISTORS

The 2N3700 are NPN transistors mounted in TO-18 metal package with the collector connected to the case .

They are intended for small signal, low noise industrial applications.

Compliance to RoHS.

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value	Unit
V_{CEO}	Collector-Emitter Voltage	80	V
V_{CBO}	Collector-Base Voltage	140	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current	1	A
P_D	Total Power Dissipation	@ $T_{amb} = 25^\circ$	0.5
		@ $T_{case} = 25^\circ$	1.8
		@ $T_{case} < 100^\circ$	1
T_J	Junction Temperature	200	$^\circ\text{C}$
T_{Stg}	Storage Temperature range	-65 to +200	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
R_{thJ-a}	Thermal Resistance, Junction-ambient	350	$^\circ\text{C}/\text{W}$
R_{thJ-c}	Thermal Resistance, Junction-case	97	$^\circ\text{C}/\text{W}$

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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

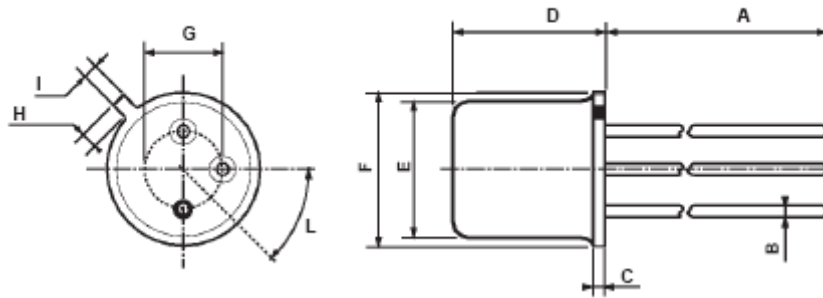
Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
I_{CBO}	Collector Cutoff Current	$V_{CB}=90\text{ V}, I_E=0\text{V}$	-	-	10	nA
I_{CBO}	Collector Cutoff Current	$V_{CB}=90\text{ V}, I_E=0\text{V}, T_J=150^\circ\text{C}$	-	-	10	μA
I_{EBO}	Emitter Cutoff Current	$V_{BE}=5.0\text{ V}, I_C=0$	-	-	10	nA
$V_{CEO} (*)$	Collector Emitter Breakdown Voltage	$I_C=30\text{ mA}, I_B=0$	80	-	-	V
V_{CBO}	Collector Base Breakdown Voltage	$I_C=100\text{ }\mu\text{A}, I_E=0$	140	-	-	V
V_{EBO}	Emitter Base Breakdown Voltage	$I_E=100\text{ }\mu\text{A}, I_C=0$	7	-	-	V
$h_{FE} (*)$	DC Current Gain	$I_C=0.1\text{ mA}, V_{CE}=10\text{ V}$	50	-	-	-
		$I_C=10\text{ mA}, V_{CE}=10\text{ V}$	90	-	-	
		$I_C=150\text{ mA}, V_{CE}=10\text{ V}$	100	-	300	
		$I_C=500\text{ mA}, V_{CE}=10\text{ V}$	50	-	-	
		$I_C=1\text{ A}, V_{CE}=10\text{ V}$	15	-	-	
$V_{CE(SAT)} (*)$	Collector-Emitter saturation Voltage	$I_C=150\text{ mA}, I_B=15\text{ mA}$	-	-	0.2	V
		$I_C=500\text{ mA}, I_B=50\text{ mA}$	-	-	0.5	
$V_{BE(SAT)} (*)$	Base-Emitter saturation Voltage	$I_C=150\text{ mA}, I_B=15\text{ mA}$	-	-	1.1	
f_T	Transition frequency	$I_C=50\text{ mA}, V_{CE}=10\text{ V}$ $f=20\text{ MHz}$	-	100	-	MHz
h_{fe}	Small signal current gain	$I_C=1\text{ mA}, V_{CE}=5.0\text{ V}$ $f=1\text{ KHz}$	80	-	400	-
C_{CBO}	Collector-Base Capacitance	$I_E=0, V_{CB}=10\text{ V}$ $f=1\text{ MHz}$	-	12	-	pF
C_{EBO}	Emitter-Base Capacitance	$I_C=0, V_{EB}=0.5\text{ V}$ $f=1\text{ MHz}$	-	60	-	pF
$r_{bb'}, C_{b'c}$	Feedback time constant	$I_C=10\text{ mA}, V_{CE}=10\text{ V}$ $f=4\text{ MHz}$	25	-	400	ps

(*) Pulse conditions : $t_p < 300\text{ }\mu\text{s}, \delta = 1\%$

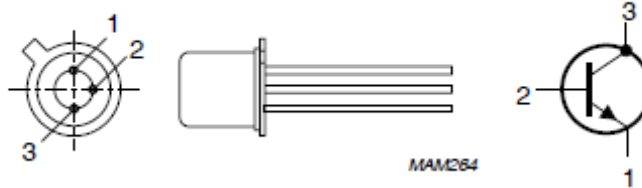
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MECHANICAL DATA CASE TO-18

DIMENSIONS (mm)		
	min	max
A	12.7	-
B	-	0.49
C	0.9	-
D	-	5.3
E	-	4.9
F	-	5.8
G	2.54	-
H	-	1.2
I	-	1.16
L	45°	-



Pin 1 :	emitter
Pin 2 :	base
Pin 3 :	Collector
Case :	Collector



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