

2N3700 Datasheet

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2N3700

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DiGi Electronics Part Number	2N3700-DG
Manufacturer	STMicroelectronics
Manufacturer Product Number	2N3700
Description	TRANS NPN 80V 1A TO18
Detailed Description	Bipolar (BJT) Transistor NPN 80 V 1 A 100MHz 500 mW Through Hole TO-18



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Purchase and inquiry

Manufacturer Product Number:

2N3700

Series:

-

Transistor Type:

NPN

Voltage - Collector Emitter Breakdown (Max):

80 V

Current - Collector Cutoff (Max):

10nA (ICBO)

Power - Max:

500 mW

Operating Temperature:

-65°C ~ 200°C (TJ)

Package / Case:

TO-206AA, TO-18-3 Metal Can

Base Product Number:

2N37

Manufacturer:

STMicroelectronics

Product Status:

Obsolete

Current - Collector (Ic) (Max):

1 A

Vce Saturation (Max) @ Ib, Ic:

500mV @ 50mA, 500mA

DC Current Gain (hFE) (Min) @ Ic, Vce:

100 @ 150mA, 10V

Frequency - Transition:

100MHz

Mounting Type:

Through Hole

Supplier Device Package:

TO-18

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.21.0075

Moisture Sensitivity Level (MSL):

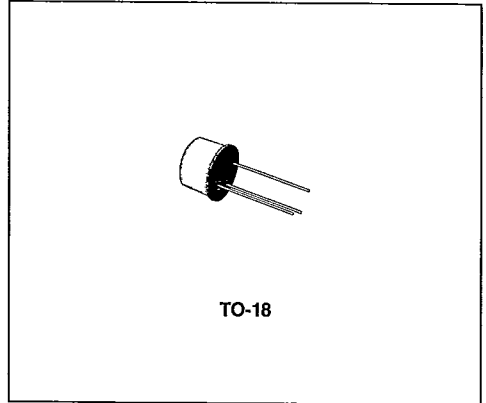
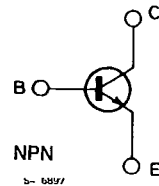
1 (Unlimited)

ECCN:

EAR99

GENERAL PURPOSE AMPLIFIERS**DESCRIPTION**

The 2N3700 is a silicon planar epitaxial NPN transistor in Jedec TO-18 metal case, intended for small signal, low noise industrial applications.

**INTERNAL SCHEMATIC DIAGRAM****ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base Voltage ($I_E = 0$)	140	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	80	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	7	V
I_C	Collector Current	1	A
P_{tot}	Total Power Dissipation at $T_{amb} \leq 25^\circ\text{C}$	0.5	W
	at $T_{case} \leq 25^\circ\text{C}$	1.8	W
	at $T_{case} \leq 100^\circ\text{C}$	1	W
T_{stg}, T_j	Storage and Junction Temperature	- 65 to 200	$^\circ\text{C}$

2N3700

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THERMAL DATA

$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	97	°C/W
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	350	°C/W

ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ °C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current ($I_E = 0$)	$V_{CB} = 90\text{ V}$ $V_{CB} = 90\text{ V}$ $T_{amb} = 150\text{ °C}$			10 10	nA μA
I_{EBO}	Emitter Cutoff Current ($I_C = 0$)	$V_{EB} = 5\text{ V}$			10	nA
$V_{(BR)CBO}$	Collector-base Breakdown Voltage ($I_E = 0$)	$I_C = 100\ \mu\text{A}$	140			V
$V_{(BR)CEO}^*$	Collector-emitter Breakdown Voltage ($I_B = 0$)	$I_C = 30\text{ mA}$	80			V
$V_{(BR)EBO}$	Emitter-base Breakdown Voltage ($I_C = 0$)	$I_E = 100\ \mu\text{A}$	7			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 150\text{ mA}$ $I_B = 15\text{ mA}$ $I_C = 500\text{ mA}$ $I_B = 50\text{ mA}$			0.2 0.5	V V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 150\text{ mA}$ $I_B = 15\text{ mA}$			1.1	V
h_{FE}^*	DC Current Gain	$I_C = 0.1\text{ mA}$ $V_{CE} = 10\text{ V}$ $I_C = 10\text{ mA}$ $V_{CE} = 10\text{ V}$ $I_C = 150\text{ mA}$ $V_{CE} = 10\text{ V}$ $I_C = 500\text{ mA}$ $V_{CE} = 10\text{ V}$ $I_C = 1\text{ A}$ $V_{CE} = 10\text{ V}$ $I_C = 150\text{ mA}$ $V_{CE} = 10\text{ V}$ $T_{amb} = -55\text{ °C}$	50 90 100 50 15 40		300	
h_{fe}	Small Signal Current Gain	$I_C = 1\text{ mA}$ $V_{CE} = 5\text{ V}$ $f = 1\text{ kHz}$	80		400	
f_T	Transition Frequency	$I_C = 50\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 20\text{ MHz}$		100		MHz
C_{EBO}	Emitter-base Capacitance	$I_C = 0$ $V_{EB} = 0.5\text{ V}$ $f = 1\text{ MHz}$		60		pF
C_{CBO}	Collector-base Capacitance	$I_E = 0$ $V_{CB} = 10\text{ V}$ $f = 1\text{ MHz}$		12		pF
$\tau_{bb} \cdot C_{b'c}$	Feedback Time Constant	$I_C = 10\text{ mA}$ $V_{CB} = 10\text{ V}$ $f = 4\text{ MHz}$	25		400	ps

* Pulsed : pulse duration = 300 μs , duty cycle = 1 %.

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