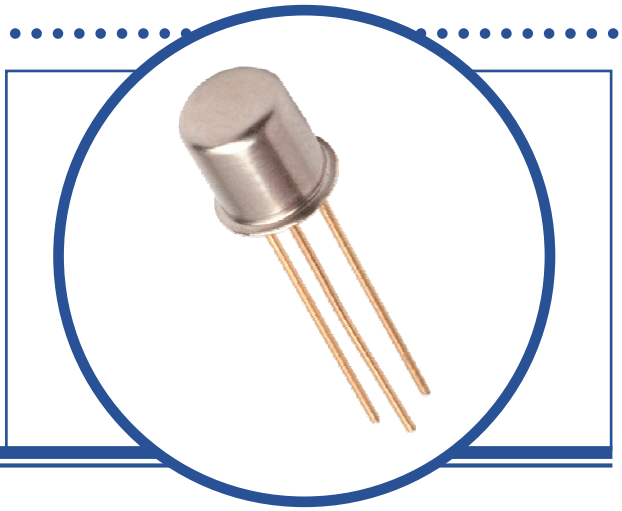
SILICON NPN TRANSISTOR

TT electronics
Semelab Limited

2N3700

- High Voltage, Medium Power Silicon Planar NPN Transistor
- Hermetic TO18 Metal Package
- High Reliability Screening Options Available
- CECC and Space Quality Level Options



ABSOLUTE MAXIMUM RATINGS (T_C = 25°C unless otherwise stated)

V_{CBO}	Collector – Base Voltage		140V
V_{CEO}	Collector – Emitter Voltage		80V
V_{EBO}	Emitter – Base Voltage		7.0V
I_C	Continuous Collector Current		1.0A
P_D	Total Power Dissipation at	T_A = 25°C	0.5W
		Derate Above T_A = 25°C	2.9mW/°C
		T_C = 25°C	1.0W
		Derate Above T_C = 25°C	5.7mW/°C
T_J	Junction Temperature Range		-65 to +200°C
T_{stg}	Storage Temperature Range		-65 to +200°C

THERMAL PROPERTIES

Symbols	Parameters	Min.	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance, Junction To Ambient			350	°C/W
$R_{\theta JC}$	Thermal Resistance, Junction To Case			175	°C/W

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ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise stated)

Symbols	Parameters	Test Conditions		Min.	Typ.	Max.	Unit
$V_{(BR)CEO}$ (1)	Collector-Emitter Breakdown Voltage	I_C = 30mA	I_B = 0	80			V
I_{EBO}	Emitter-Base Cut-Off Current	V_{EB} = 7.0V	I_C = 0			10	µA
		V_{EB} = 5.0V	I_C = 0			10	nA
I_{CES}	Collector-Emitter Cut-Off Current	V_{CE} = 90V				10	
			T_A = 150°C			5	µA
I_{CBO}	Collector-Base Cut-Off Current	V_{CB} = 140V	I_E = 0			10	
h_{FE} (1)	DC Current Gain	I_C = 0.10mA	V_{CE} = 10V	50			
		I_C = 10mA	V_{CE} = 10V	90			
		I_C = 150mA	V_{CE} = 10V	100		300	
			T_A = -55°C	40			
		I_C = 500mA	V_{CE} = 10V	50			
		I_C = 1.0A	V_{CE} = 10V	15			
$V_{CE(sat)}$ (1)	Collector-Emitter Saturation Voltage	I_C = 150mA	I_B = 15mA			0.2	
		I_C = 500mA	I_B = 50mA			0.5	V
$V_{BE(sat)}$ (1)	Base-Emitter Saturation Voltage	I_C = 150mA	I_B = 15mA			1.1	

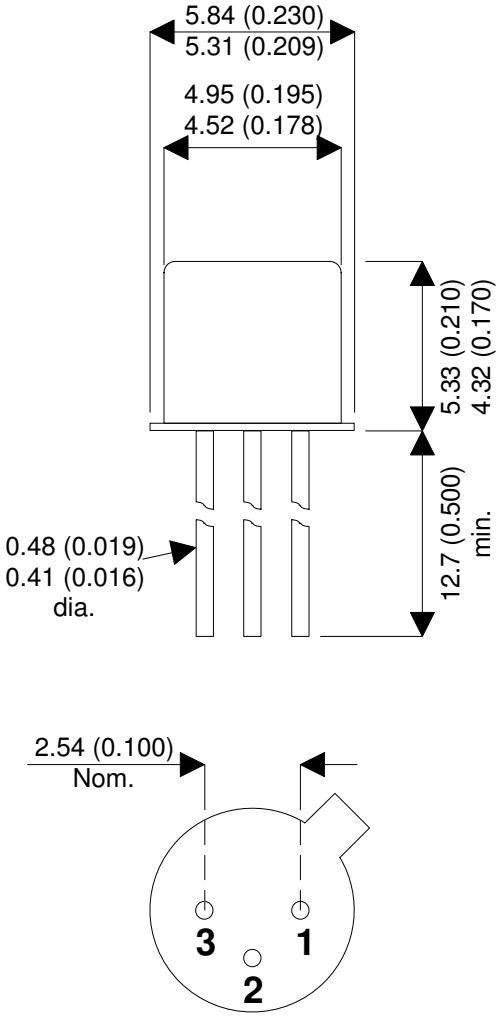
DYNAMIC CHARACTERISTICS

$\|h_{fe}\|$	Magnitude of Small-Signal Short-Circuit Current Gain	I_C = 50mA f = 20MHz	V_{CE} = 10V	4	5	20	
h_{fe}	Small-Signal Short-Circuit Current Gain	I_C = 1.0mA f = 1.0KHz	V_{CE} = 5.0V	80		400	
C_{obo}	Output Capacitance	V_{CB} = 10V f = 1.0MHz	I_E = 0			12	pF
C_{ibo}	Input Capacitance	V_{EB} = 0.5V f = 1.0MHz	I_C = 0			60	pF

Notes
(1) Pulse Width ≤ 300us, δ ≤ 2%

MECHANICAL DATA

Dimensions in mm (inches)



TO18 (TO-206AA) METAL PACKAGE

Underside View

PIN 1 - Emitter PIN 2 - Base PIN 3 - Collector