

2N3700

Features

- Meets MIL-S-19500/391
- Collector-Base Voltage 140V
- Fast Switching 30 nS

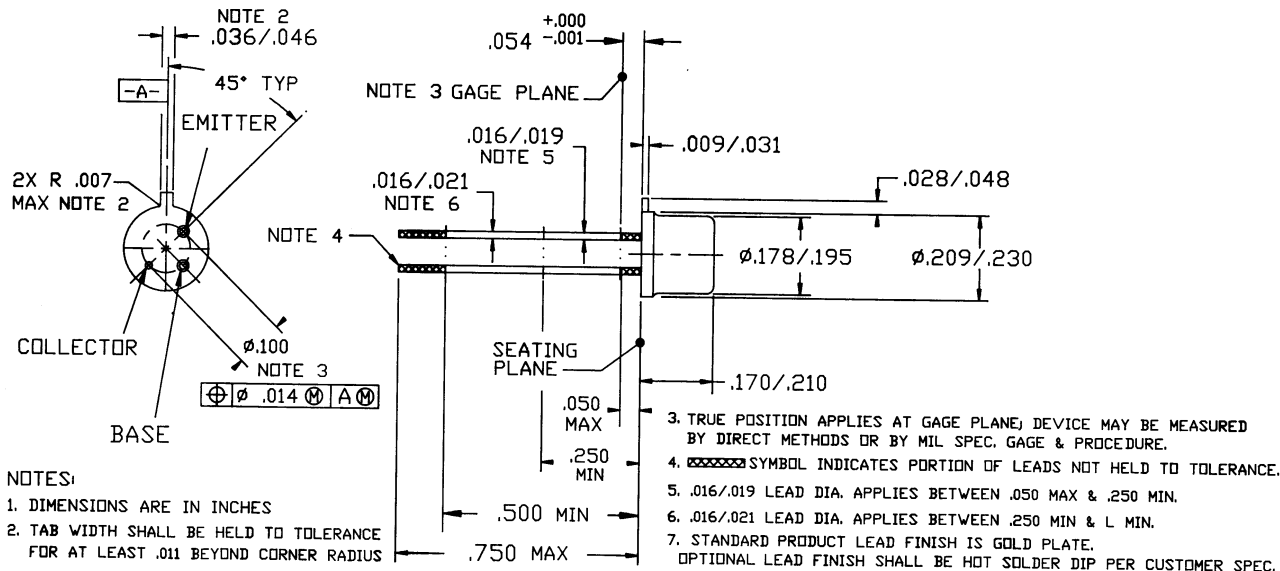
140 Volts
1 Amp

NPN
BIPOLAR
TRANSISTOR

Maximum Ratings

RATING	SYMBOL	MAX.	UNIT
Collector-Emitter Voltage	V_{CEO}	80	Vdc
Collector-Base Voltage	V_{CBO}	140	Vdc
Emitter-Base Voltage	V_{EBO}	7.0	Vdc
Total Device Dissipation @ TA = 25°C Derate above 25°C	P_D	0.5 2.85	Watts mW/°C
Total Device Dissipation @ TA = 25°C Derate above 25°C	P_D	1.8 10.3	Watts mW/°C
Operating Temperature Range	T_J	-55 to +175	°C
Storage Temperature Range	T_s	-55 to +175	°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	300	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	83	°C/W

Mechanical Outline



Electrical Parameters (T_A @ 25°C unless otherwise specified)

CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Off Characteristics					
Collector-Emitter Breakdown Voltage (I _C = 30 mA, I _B = 0)	BV _{CEO}	80		--	Vdc
Collector-Base Breakdown Voltage (I _C = 100 μA, I _E = 0)	BV _{CEO}	140		--	Vdc
Emitter-Base Breakdown Voltage (I _E = 100 μA, I _C = 0)	BV _{EBO}	7.0		--	Vdc
Collector Cutoff Current (V _{CB} = 90 Vdc, I _E = 0) (V _{CB} = 90 Vdc, I _E = 0, T _A = +150°C)	I _{CES}	-- --		0.01 10	μA
Emitter Cutoff Current (V _{EB} = 5.0 Vdc, I _C = 0)	I _{EBO}	--		10	nA
D.C. Current Gain (I _C = 0.1 mA, V _{CE} = 10 Vdc) (I _C = 10 mA, V _{CE} = 10 Vdc)(1) (I _C = 150 mA, V _{CE} = 10 Vdc)(1) (I _C = 150 mA, V _{CE} = 10 Vdc, T _C = -55°C)(1) (I _C = 500 mA, V _{CE} = 10 Vdc)(1) (I _C = 1.0 mA, V _{CE} = 10 Vdc)	h _{FE}	50 90 100 40 50 15		200 -- 300 -- 200 --	--
Collector-Emitter Saturation Voltage(1) (I _C = 150 mA, I _B = 15 mA) (I _C = 500 mA, I _B = 50 mA)	V _{CE(Sat)}	-- --		0.2 0.5	Vdc
Base-Emitter Saturation Voltage(1) (I _C = 150 mA, I _B = 15 mA)	V _{BE(Sat)}	--		1.1	Vdc
Small-signal short circuit forward current transfer ratio (I _C = 50 mA, V _{CE} = 10 Vdc, f = 20 MHz)	h _{fe}	5		20	
Output Capacitance (V _{CB} = 10 Vdc, I _E = 0, 100kHz ≤ f ≤ 1MHz)	C _{OBO}	--		12	pf
Input Capacitance (V _{EB} = 0.5 Vdc, I _C = 0, 100kHz ≤ f ≤ 1MHz)	C _{IBo}	--		60	pf
Small-Signal Current Gain (I _C = 1.0 mA, V _{CE} = 5.0 Vdc, f = 1.0 MHz)	h _{fe}	80		400	--
Collector Base Time Constant (I _E = 10 mA, V _{CB} = 10 Vdc, f = 79.8 MHz)	rb'C _C			400	ps
Noise Figure (I _C = 100 μA, V _{CE} = 10 Vdc, R _g = 1.0 k ohms, f = 200Hz)	NF	--		4	dB

(1) Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 1.0%.