Watertown, MA
Microsemi
Progress Powered by Technology

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Watertown, MA 02172
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2N1893

Features

- Meets MIL-S-19500/182
- Collector-Base Voltage 120
- Collector Current: 0.5 mA
- Fast Switching 30 nS

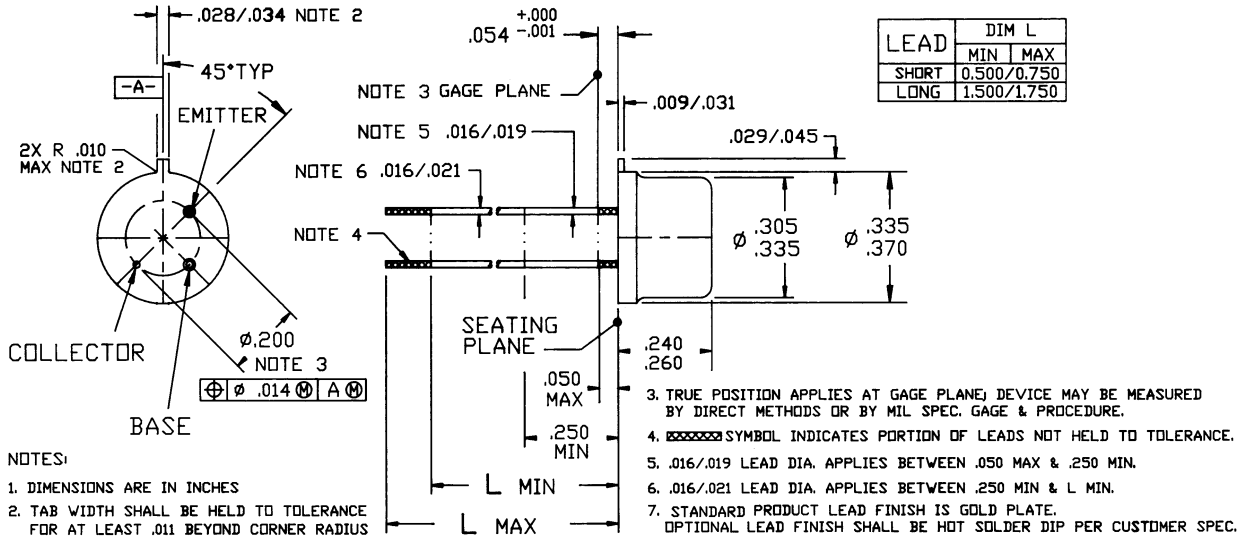
120 Volts
0.5 Amps

NPN
BIPOLAR
TRANSISTOR

Maximum Ratings

RATING	SYMBOL	MAX.	UNIT
Collector-Emitter Voltage	V_{CEO}	80	Vdc
Collector-Emitter Voltage	V_{CER}	100	Vdc
Collector-Base Voltage	V_{CBO}	120	Vdc
Emitter-Base Voltage	V_{EBO}	7.0	Vdc
Collector Current - Continuous	I_C	0.5	Adc
Total Device Dissipation @ $T_A = 25^oC$ Derate above 25^oC	P_D	0.8 4.57	Watt mW/^{o}C
Total Device Dissipation @ $T_C = 25^oC$ Derate above 25^oC	P_D	3.0 17.2	Watts mW/^{o}C
Operating Temperature Range	T_J	-55 to +200	^{o}C
Storage Temperature Range	T_S	-55 to +200	^{o}C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	219	^{o}C/W
Thermal Resistance, Junction to Case	$R_{\theta JA}$	58	^{o}C/W

Mechanical Outline



NOTES:
1. DIMENSIONS ARE IN INCHES
2. TAB WIDTH SHALL BE HELD TO TOLERANCE FOR AT LEAST .011 BEYOND CORNER RADIUS
3. TRUE POSITION APPLIES AT GAGE PLANE; DEVICE MAY BE MEASURED BY DIRECT METHODS OR BY MIL SPEC. GAGE & PROCEDURE.
4. ▨ SYMBOL INDICATES PORTION OF LEADS NOT HELD TO TOLERANCE.
5. .016/.019 LEAD DIA. APPLIES BETWEEN .050 MAX & .250 MIN.
6. .016/.021 LEAD DIA. APPLIES BETWEEN .250 MIN & L MIN.
7. STANDARD PRODUCT LEAD FINISH IS GOLD PLATE. OPTIONAL LEAD FINISH SHALL BE HOT SOLDER DIP PER CUSTOMER SPEC.

FOR SHORT LEAD ADD SUFFIX "S"
ie: 2N1893S

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

CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Off Characteristics					
Collector-Emitter Breakdown Voltage (I_C = 100 mAdc, R_{BE} = 10 ohms)(1)	BV_{CER}	100		--	Vdc
Collector-Emitter Sustaining Voltage(1) (I_C = 30 mAdc, I_B = 0)(1)	BV_{CEO}	80		--	Vdc
Collector-Base Breakdown Voltage (I_C = 100 µAdc, I_E = 0)	$BV_{(BR)CBO}$	120		--	Vdc
Emitter-Base Breakdown Voltage (IE = 100 µAdc, I_C = 0)	$BV_{(BR)EBO}$	7.0		--	Vdc
Collector Cutoff Current (V_{CB} = 90 Vdc, I_E = 0) (V_{CB} = 90 Vdc, I_E = 0, T_A = 150°C)	IC_{BO}	-- --		0.01 15	µAdc
Emitter Cutoff Current (V_{EB} = 5.0 Vdc, I_C = 0)	IE_{BO}	--		0.01	µAdc
On Characteristics					
D.C. Current Gain (I_C = 0.1 mAdc, V_{CE} = 10 Vdc) (I_C = 10mAdc, V_{CE} = 10 Vdc)(1) (I_C = 10mAdc, V_{CE} = 10 Vdc, TA = -55°C)(1) (I_C = 150mAdc, V_{CE} = 10 Vdc)(1)	h_{FE}	20 35 20 40		-- -- -- 120	--
Collector-Emitter Saturation Voltage(1) (I_C = 150 mAdc, I_B = 15 mAdc)	$V_{CE(Sat)}$	--		0.5	Vdc
Base-Emitter Saturation Voltage(1) (I_C = 150 mAdc, I_B = 15 mAdc)	$V_{BE(Sat)}$	--		1.3	Vdc
Magnitude of small signal short-circuit forward current ratio (I_C = 50 mAdc, V_{CE} = 10 Vdc, f = 20 MHz)	/hfe/	3		10	
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 1.0 MHz)	C_{OBO}	5		15	pF
Input Impedance = (I_C = 5.0 mAdc, V_{CB} = 10 Vdc, f = 1.0kHz)	h_{ib}	4.0		8.0	Ohms
Voltage Feedback Ratio (I_C = 5.0 mAdc, V_{CB} = 10 Vdc, f = 1.0 kHz)	h_{rb}	 --		1.5	X 10^{-4}
Small-Signal Current Gain (I_c = 1.0 mAdc, V_{cB} = 5.0Vdc, f = 1.0 kHz) (I_C = 5.0 mAdc, V_{CB} = 10 Vdc, f = 1.0 kHz)	h_{fe}	35 45		100 --	--
Output Admittance (I_C = 5.0 mAdc, V_{CB} = 10 Vdc, f = 1.0 kHz)	h_{ob}	-- --		0.5	µmho
Pulse response (V_{cc} = 20Vdc, I_c = 500mAdc)	$t_{on} + t_{off}$	--		30	ns

(1) Pulse Test: Pulse Width ≤ 300 µs, Duty Cycle ≤ 2.0%.