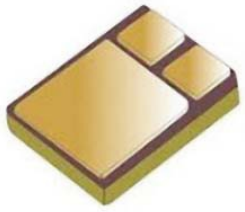
2N6193U3

NPN Power Silicon Transistor

Rev. V1

Features

- JANS and JANSR Qualified to MIL-PRF-19500/561
- JEDEC Registered 2N6193
- Lightweight & Low Power
- Ideal for Space, Military, and Other High Reliability Applications
- Surface Mount U3 (TO-276AA) Package



Electrical Characteristics

Parameter	Test Conditions	Symbol	Units	Min.	Max.
Off Characteristics					
Collector - Emitter Breakdown Voltage	I_C = 50 mAdc	$V_{(BR)CEO}$	Vdc	100	—
Collector - Emitter Cutoff Current	V_{CE} = 100 Vdc V_{CE} = 90 Vdc, V_{BE} = 1.5 Vdc	I_{CEO} I_{CEX}	µAdc	— —	100 10
Collector - Base Cutoff Current	V_{CB} = 100 Vdc	I_{CBO}	µAdc	—	10
Emitter - Base Cutoff Current	V_{EB} = 6.0 Vdc	I_{EBO}	µAdc	—	100
On Characteristics[1]					
Forward Current Transfer Ratio	I_C = 0.5 Adc, V_{CE} = 2.0 Vdc I_C = 2.0 Adc, V_{CE} = 2.0 Vdc I_C = 5.0 Adc, V_{CE} = 2.0 Vdc	H_{FE}	-	60 60 40	— 240 —
Collector - Emitter Saturation Voltage	I_C = 2.0 Adc, I_B = 0.2 Adc I_C = 5.0 Adc, I_B = 0.5 Adc	$V_{CE(SAT)}$	Vdc	—	0.7 1.2
Emitter - Base Saturation Voltage	I_C = 2.0 Adc, I_B = 0.2 Adc I_C = 5.0 Adc, I_B = 0.5 Adc	$V_{BE(SAT)}$	Vdc	—	1.2 1.8
Dynamic Characteristics					
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio	I_C = 0.5 Adc, V_{CE} = 10.0 Vdc, f = 10 mHz	$\lvert H_{FE} \rvert$	-	3	15
Output Capacitance	V_{CB} = 10 Vdc, I_E = 0, 100 kHz ≤ f ≤ 1 MHz	C_{OBO}	pF	—	300
Input Capacitance	V_{BE} = 2 Vdc, I_C = 0, 100 kHz ≤ f ≤ 1 MHz	C_{IBO}	pF	—	1250
Switching Characteristics					
Delay Time	V_{CC} = -40 Vdc; $V_{BE(OFF)}$ = 2.3 Vdc	T_D	ns	—	100
Rise Time	I_C = 2.0 Adc, I_B1 = 0.2 Adc	T_R	ns	—	100
Storage Time	V_{CC} = -40 Vdc; I_C = 2.0 Adc	T_S	µs	—	2.0
Fall Time	I_B1 = -I_B2 = 0.2 Adc	T_F	ns	—	200
Safe Operating Area					
DC Tests: Test 1: Test 2:	T_C = +25°C, I Cycle, t ≥ 0.5 s V_{CE} = 2 Vdc, I_C = 5 Adc V_{CE} = 90 Vdc, I_C = 55 mAdc				

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

NPN Power Silicon Transistor

Rev. V1

Absolute Maximum Ratings

Ratings	Symbol	Value
Collector - Emitter Voltage	V_{CEO}	100 Vdc
Collector - Base Voltage	V_{CBO}	100 Vdc
Emitter - Base Voltage	V_{EBO}	6 Vdc
Base Current	I_B	1 Adc
Collector Current	I_C	5 Adc
Total Power Dissipation @ T_A = 25°C @ T_C = 25°C	P_T	1.0 W 100 W
Operating & Storage Temperature Range	T_{OP}, T_{STG}	-65°C to +200°C

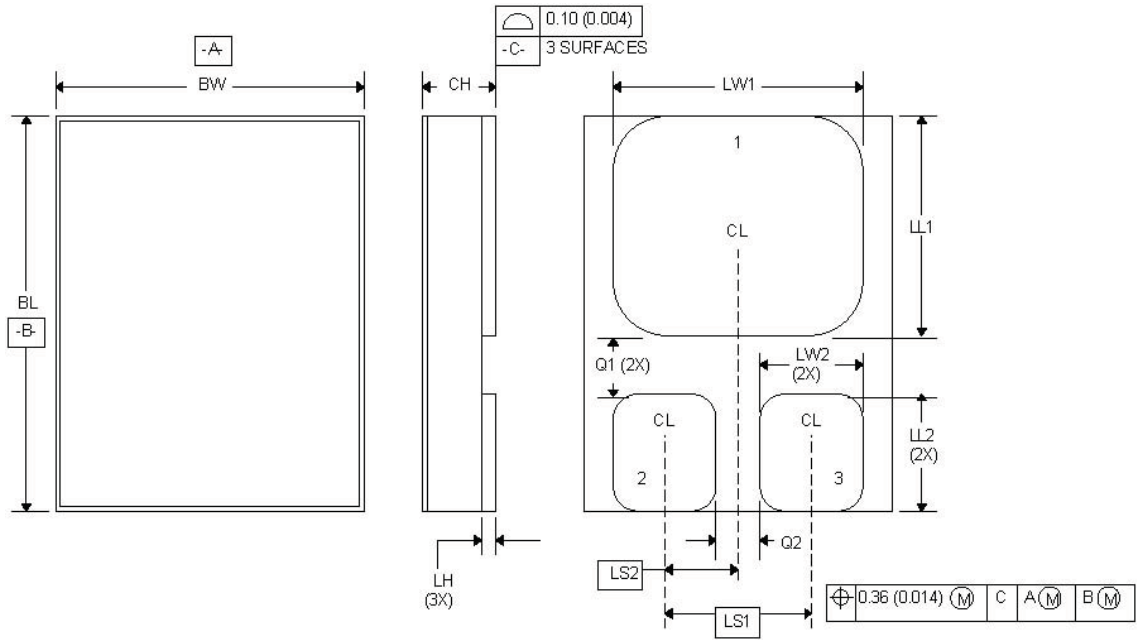
Thermal Characteristics

Characteristics	Symbol	Max. Value
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.75°C/W

NPN Power Silicon Transistor

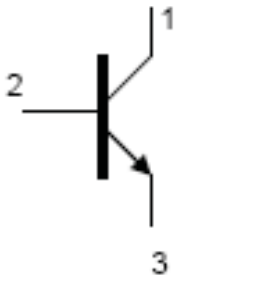
Rev. V1

Outline Drawing (U3)



1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. In accordance with ASME Y14.5M, diameters are equivalent to φx symbology.
4. Terminal 1 - collector, terminal 2 -base, terminal 3 - emitter.

SCHEMATIC



Ltr	Dimensions			
	Inches		Millimeters	
	Min.	Max.	Min.	Max.
BL	0.395	0.405	10.03	10.29
BW	0.291	0.301	7.40	7.65
CH	0.1085	0.1205	2.76	3.06
LH	0.010	0.020	0.25	0.51
LW_1	0.281	0.291	7.14	7.39
LW_2	0.090	0.100	2.29	2.54
LL_1	0.220	0.230	5.59	5.84
LL_2	0.115	0.125	2.92	3.18
LS_1	0.150 BSC		3.81 BSC	
LS_2	0.075 BSC		1.91 BSC	
Q_1	0.030	-	0.762	-
Q_2	0.030	-	0.762	-