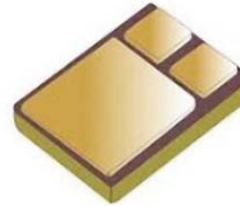


## PNP Power Silicon Transistor

Rev. V2

### 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.
<b>Off Characteristics</b>					
Collector - Emitter Breakdown Voltage	$I_C = 50 \text{ mAdc}$	$V_{(BR)CEO}$	Vdc	100	—
Collector - Emitter Cutoff Current	$V_{CE} = 100 \text{ Vdc}$ $V_{CE} = 90 \text{ Vdc}, V_{BE} = 1.5 \text{ Vdc}$	$I_{CEO}$ $I_{CEX}$	$\mu\text{Adc}$	—	100 10
Collector - Base Cutoff Current	$V_{CB} = 100 \text{ Vdc}$	$I_{CBO}$	$\mu\text{Adc}$	—	10
Emitter - Base Cutoff Current	$V_{EB} = 6.0 \text{ Vdc}$	$I_{EBO}$	$\mu\text{Adc}$	—	100
<b>On Characteristics<sup>1</sup></b>					
Forward Current Transfer Ratio	$I_C = 0.5 \text{ Adc}, V_{CE} = 2.0 \text{ Vdc}$ $I_C = 2.0 \text{ Adc}, V_{CE} = 2.0 \text{ Vdc}$ $I_C = 5.0 \text{ Adc}, V_{CE} = 2.0 \text{ Vdc}$	$H_{FE}$	-	60 60 40	— 240 —
Collector - Emitter Saturation Voltage	$I_C = 2.0 \text{ Adc}, I_B = 0.2 \text{ Adc}$ $I_C = 5.0 \text{ Adc}, I_B = 0.5 \text{ Adc}$	$V_{CE(SAT)}$	Vdc	—	0.7 1.2
Emitter - Base Saturation Voltage	$I_C = 2.0 \text{ Adc}, I_B = 0.2 \text{ Adc}$ $I_C = 5.0 \text{ Adc}, I_B = 0.5 \text{ Adc}$	$V_{BE(SAT)}$	Vdc	—	1.2 1.8
<b>Dynamic Characteristics</b>					
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio	$I_C = 0.5 \text{ Adc}, V_{CE} = 10.0 \text{ Vdc}, f = 10 \text{ mHz}$	$ H_{FE} $	-	3	15
Output Capacitance	$V_{CB} = 10 \text{ Vdc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1 \text{ MHz}$	$C_{OBO}$	pF	—	300
Input Capacitance	$V_{BE} = 2 \text{ Vdc}, I_C = 0, 100 \text{ kHz} \leq f \leq 1 \text{ MHz}$	$C_{IBO}$	pF	—	1250
<b>Switching Characteristics</b>					
Delay Time	$V_{CC} = -40 \text{ Vdc}; V_{BE(OFF)} = 2.3 \text{ Vdc}$	$T_D$	ns	—	100
Rise Time	$I_C = 2.0 \text{ Adc}, I_{B1} = 0.2 \text{ Adc}$	$T_R$	ns	—	100
Storage Time	$V_{CC} = -40 \text{ Vdc}; I_C = 2.0 \text{ Adc}$	$T_S$	$\mu\text{s}$	—	2.0
Fall Time	$I_{B1} = -I_{B2} = 0.2 \text{ Adc}$	$T_F$	ns	—	200
<b>Safe Operating Area</b>					
DC Tests:	$T_C = +25^\circ\text{C}, 1 \text{ Cycle}, t \geq 0.5 \text{ s}$				
Test 1:	$V_{CE} = 2 \text{ Vdc}, I_C = 5 \text{ Adc}$				
Test 2:	$V_{CE} = 90 \text{ Vdc}, I_C = 55 \text{ mAdc}$				

1. Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

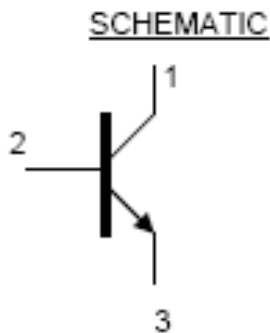
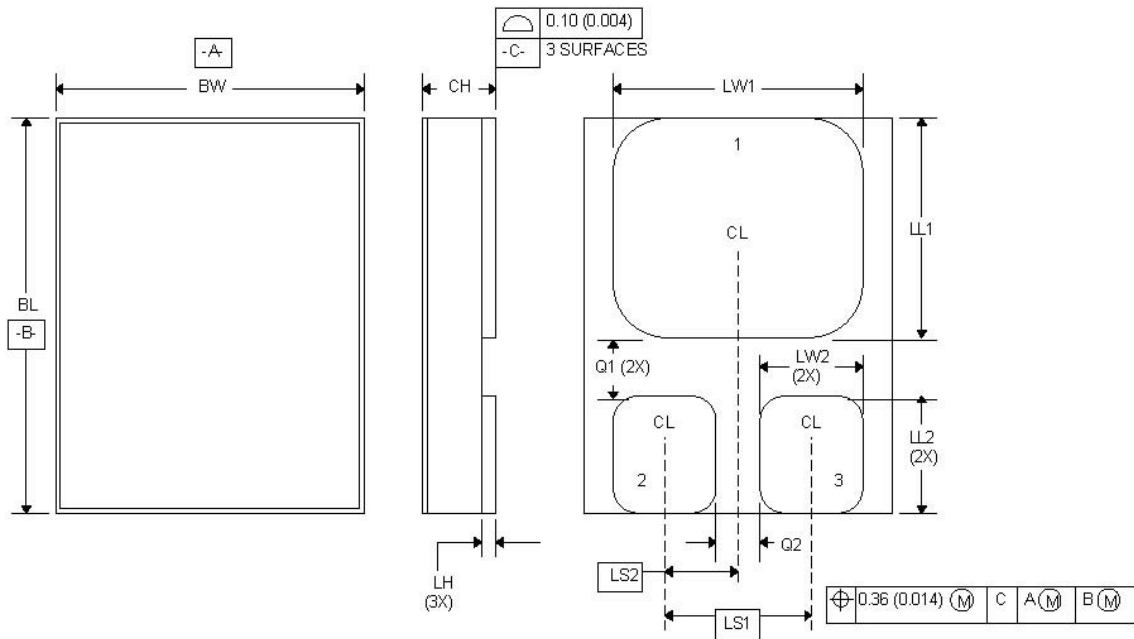
### Absolute Maximum Ratings

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 @ $T_A = 25^\circ\text{C}$ @ $T_C = 25^\circ\text{C}$	$P_T$	1.0 W 100 W
Operating & Storage Temperature Range	$T_{OP}, T_{STG}$	$-65^\circ\text{C}$ to $+200^\circ\text{C}$

### Thermal Characteristics

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

### Outline Drawing (U3)



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
LW1	0.281	0.291	7.14	7.39
LW2	0.090	0.100	2.29	2.54
LL1	0.220	0.230	5.59	5.84
LL2	0.115	0.125	2.92	3.18
LS1	0.150 BSC		3.81 BSC	
LS2	0.075 BSC		1.91 BSC	
Q1	0.030	-	0.762	-
Q2	0.030	-	0.762	-

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