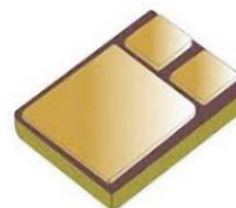


Features

- JAN, JANTX, JANTXV, JANS and JANSR Qualified to MIL-PRF-19500/560
- Radiation Tolerant Levels M, D, P, L and R
- Lightweight & Low Power
- Ideal for Space, Military and Other High Reliability Applications
- Surface Mount U3 Package



Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Test Conditions	Symbol	Units	Min.	Max.
Collector - Emitter Breakdown Voltage	$I_C = 50 \text{ mA dc}$	$V_{(BR)CEO}$	V dc	100	—
Collector - Emitter Cutoff Current	$V_{CE} = 100 \text{ V dc}$ $V_{CE} = 90 \text{ V dc}, V_{BE} = 1.5 \text{ V dc}$	I_{CEO} I_{CEX1}	$\mu\text{A dc}$	—	100 1.0
Collector - Base Cutoff Current	$V_{CB} = 100 \text{ Vdc}$	I_{CBO}	$\mu\text{A dc}$	—	1.0
Emitter - Base Cutoff Current	$V_{EB} = 6.0 \text{ Vdc}$	I_{EBO}	$\mu\text{A dc}$	—	100
Forward Current Transfer Ratio	$I_C = 0.5 \text{ A dc}, V_{CE} = 2.0 \text{ V dc}$ $I_C = 2.0 \text{ A dc}, V_{CE} = 2.0 \text{ V dc}$ $I_C = 5.0 \text{ A dc}, V_{CE} = 2.0 \text{ V dc}$	h_{FE}	-	60 60 40	240
Collector - Emitter Saturation Voltage	$I_C = 2.0 \text{ A dc}, I_B = 0.2 \text{ A dc}$ $I_C = 5.0 \text{ A dc}, I_B = 0.5 \text{ A dc}$	$V_{CE(SAT)1}$ $V_{CE(SAT)2}$	V dc	—	0.7 1.2
Emitter - Base Saturation Voltage	$I_C = 2.0 \text{ A dc}, I_B = 0.2 \text{ A dc}$ $I_C = 5.0 \text{ A dc}, I_B = 0.5 \text{ A dc}$	$V_{BE(SAT)1}$ $V_{BE(SAT)2}$	V dc	—	1.2 1.8
Collector - Emitter Cutoff Current	$T_A = +150^\circ\text{C}$ $V_{CE} = 90 \text{ V dc}, V_{BE} = 1.5 \text{ V dc}$	I_{CEX2}	mA dc	—	1.0
Forward - Current Transfer Ratio	$V_{CE} = 2.0 \text{ V dc}, I_C = 2.0 \text{ A dc}$	h_{FE4}	-	12	
Dynamic Characteristics					
Small-Signal Short-Circuit Forward Current Transfer Ratio	$I_C = 0.5 \text{ A dc}, V_{CE} = 10 \text{ V dc}, f = 10 \text{ MHz}$	$ h_{fe} $	-	3	15
Output Capacitance	$V_{CB} = 10 \text{ V dc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1 \text{ MHz}$	C_{obo}	pF	—	250
Input Capacitance	$V_{BE} = 2 \text{ V dc}, I_C = 0, 100 \text{ kHz} \leq f \leq 1 \text{ MHz}$	C_{ibo}	pF	—	1000

Absolute Maximum Ratings ($T_A = +25^\circ\text{C}$ unless otherwise noted)

Ratings	Symbol	Value
Collector - Emitter Voltage	V_{CEO}	100 V dc
Collector - Base Voltage	V_{CBO}	100 V dc
Emitter - Base Voltage	V_{EBO}	6 V dc
Base Current	I_B	1 A dc
Collector Current	I_C	5 A dc
Total Power Dissipation ⁽¹⁾ @ $T_A = 25^\circ\text{C}$ @ $T_C = 25^\circ\text{C}$	P_T	1.0 W 75 W
Operating & Storage Temperature Range	T_J, T_{STG}	-65°C to $+200^\circ\text{C}$

1. For derating, see figures 6, 7, and 8 of MIL-PRF-19500/560.

Thermal Characteristics

Characteristics	Symbol	Max. Value
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.3°C/W

Parameter	Test Conditions	Symbol	Units	Min.	Max.
Pulse Response					
Pulse Delay Time	See Figure 12 of MIL-PRF-19500/560	t_d	ns	—	100
Pulse Rise Time	See Figure 12 of MIL-PRF-19500/560	t_r	ns	—	100
Pulse Storage Time	See Figure 13 of MIL-PRF-19500/560	t_s	μs	—	2
Pulse Fall Time	See Figure 13 of MIL-PRF-19500/560	t_f	ns	—	200

Safe Operating Area

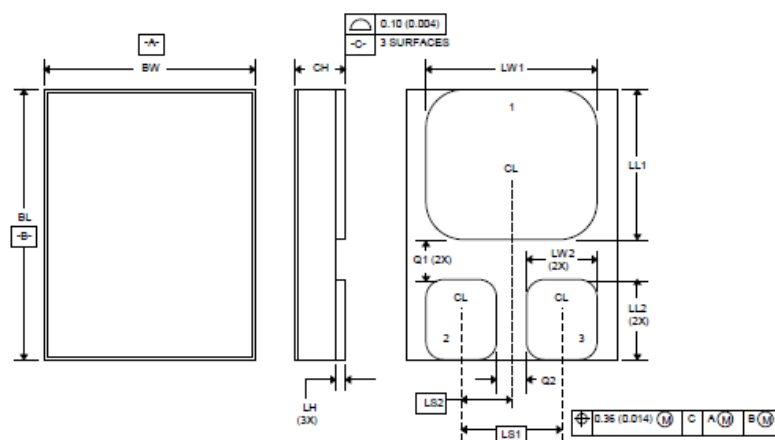
DC Tests: $T_C = +25^\circ\text{C}$, 1 Cycle, $t \geq 0.5$ s

Test 1: $V_{CE} = 2$ Vdc, $I_C = 5$ A dc

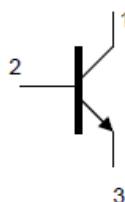
Test 2: $V_{CE} = 5$ Vdc, $I_C = 2$ A dc

Test 3: $V_{CE} = 90$ Vdc, $I_C = 55$ mA dc

Outline Drawing (U3)



SCHEMATIC



Ltr	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
BL	.395	.405	10.03	10.29
BW	.291	.301	7.40	7.65
CH	.1085	.1205	2.76	3.06
LH	.010	.020	0.25	0.51
LW1	.281	.291	7.14	7.39
LW2	.090	.100	2.29	2.54
LL1	.220	.230	5.59	5.84
LL2	.115	.125	2.92	3.18
LS1	.150 BSC		3.81 BSC	
LS2	.075 BSC		1.91 BSC	
Q1	.030		0.762	
Q2	.030		0.762	

NOTES:

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

FIGURE 2. Physical dimensions and configuration (U3) (SMD 5) (TO-276AA).

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