

2N4237 - 2N4239 Series

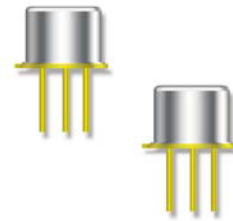


NPN Power Silicon Transistor

Rev. V1

Features

- Available in JAN, JANTX, and JANTXV per MIL-PRF-19500/581
- TO-39 (TO-205AD) Package



Electrical Characteristics

Parameter	Test Conditions	Symbol	Units	Min.	Max.
Off Characteristics					
Collector - Emitter Breakdown Voltage	$I_C = 100 \text{ mAdc}$, 2N4237 2N4238 2N4239	$V_{(BR)CEO}$	Vdc	50 80 100	—
Collector - Emitter Cutoff Current	$V_{CE} = 90 \text{ Vdc}$, $V_{CE} = 1.5 \text{ Vdc}$ $V_{CE} = 50 \text{ Vdc}$, 2N4237 $V_{CE} = 80 \text{ Vdc}$, 2N4238 $V_{CE} = 10 \text{ Vdc}$, 2N4239	I_{CEX}	nAdc	—	100
Collector - Emitter Cutoff Current	$V_{CE} = 50 \text{ Vdc}$, $V_{BE} = -1.5 \text{ Vdc}$, 2N4237 $V_{CE} = 80 \text{ Vdc}$, $V_{BE} = -1.5 \text{ Vdc}$, 2N4238 $V_{CE} = 10 \text{ Vdc}$, $V_{BE} = -1.5 \text{ Vdc}$, 2N4239	I_{CBO}	nAdc	—	100
Emitter - Base Cutoff Current	$V_{BE} = 6 \text{ Vdc}$	I_{EBO}	mAdc	—	0.5
On Characteristics					
Forward Current Transfer Ratio	$I_C = 250 \text{ mAdc}$, $V_{CE} = 1.0 \text{ Vdc}$ $I_C = 500 \text{ mAdc}$, $V_{CE} = 1.0 \text{ Vdc}$	H_{FE}	-	30 30	150
Collector - Emitter Saturation Voltage	$I_C = 1.0 \text{ Adc}$, $I_B = 100 \text{ mAdc}$ $I_C = 500 \text{ mAdc}$, $I_B = 50 \text{ mAdc}$	$V_{CE(SAT)}$	Vdc	—	0.3 0.6
Base - Emitter Saturation Voltage	$I_C = 500 \text{ mAdc}$, $I_B = 50 \text{ mAdc}$ $I_C = 1 \text{ Adc}$, $I_B = 100 \text{ mAdc}$	$V_{BE(SAT)}$	Vdc	—	1.0 1.5
Dynamic Characteristics					
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio	$I_C = 100 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 10 \text{ mHz}$	$ h_{FE} $	-	3	—
Output Capacitance	$V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, 100 kHz	C_{OBO}	pF	—	100
Safe Operating Area					
DC Tests:	$T_C = +25^\circ\text{C}$, 1 Cycle, $t \geq 0.5 \text{ s}$				
Test 1:	$V_{CE} = 6 \text{ Vdc}$, $I_C = 1 \text{ Adc}$				
Test 2:	$V_{CE} = 12 \text{ Vdc}$, $I_C = 500 \text{ mAdc}$				
Test 3:	$V_{CE} = 30 \text{ Vdc}$, $I_C = 166 \text{ mAdc}$, 2N4237				
	$V_{CE} = 30 \text{ Vdc}$, $I_C = 100 \text{ mAdc}$, 2N4238				
	$V_{CE} = 30 \text{ Vdc}$, $I_C = 71 \text{ mAdc}$, 2N4239				

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Absolute Maximum Ratings

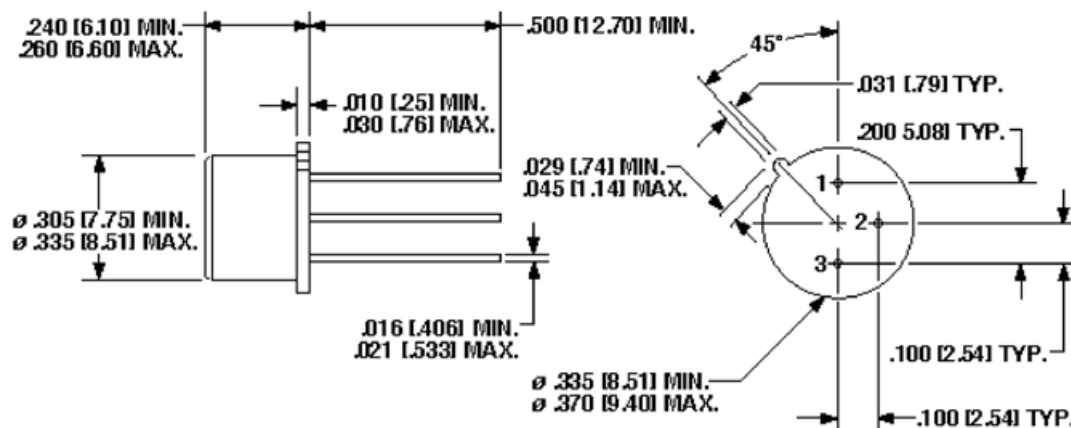
Ratings	Symbol	Value
Collector - Emitter Voltage 2N4237 2N4238 2N4239	V_{CEO}	40 Vdc 60 Vdc 80 Vdc
Collector - Base Voltage 2N4237 2N4238 2N4239	V_{CBO}	50 Vdc 80 Vdc 100 Vdc
Emitter - Base Voltage	V_{EBO}	6.0 Vdc
Collector Current	I_C	1.0 Adc
Base Current	I_B	0.5 Adc
Total Power Dissipation @ $T_A = 25^\circ\text{C}^2$ @ $T_C = 25^\circ\text{C}^3$	P_T	1.0 W 6.0 W
Operating & Storage Temperature Range	T_{OP}, T_{STG}	-65°C to $+200^\circ\text{C}$

- Derate linearly @ 5.7 mW/°C for $T_A > +25^\circ\text{C}$.
- Derate linearly @ 34 mW/°C for $T_C > +75^\circ\text{C}$.

Thermal Characteristics

Characteristics	Symbol	Max. Value
Thermal Resistance, Junction to Case	$R_{\theta JC}$	29°C/W

Outline Drawing



Dimensions are in inches [mm].

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