

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from, Europe, America and south Asia, supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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TECHNICAL DATA

NPN MEDIUM POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/581

Devices Qualified Level

2N4237 2N4238 2N4239

JANTX JANTXV

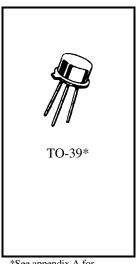
MAXIMUM RATINGS ($T_A = 25^{\circ}$ C Unless Otherwise noted)

Ratings	Symbol	2N4237	2N4238	2N4239	Units
Collector-Emitter Voltage	V_{CEO}	40	60	80	Vdc
Collector-Base Voltage	V_{CBO}	50	80	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 @ $T_A = +25^0 C^{(1)}$	n 1.0			W	
$ @ T_{\rm C} = +25^{0}{\rm C}^{(2)} $	P_{T}		6.0		W
Operating & Storage Temperature Range	Top, Tstg	-65 to +200			°C

THERMAL CHARACTERISTICS

THERETE CHARACTER STIES					
Characteristics	Symbol	Max.	Unit		
Thermal Resistance, Junction-to-Case	$R_{ heta JC}$	29	⁰ C/W		

¹⁾ Derate linearly 5.7 mW/ $^{\circ}$ C for $T_A > +25^{\circ}$ C



*See appendix A for package outline

ELECTRICAL CHARACTERISTICS (T_A = 25⁰C unless otherwise noted)

Charac	teristics	Symbol	Min.	Max.	Unit
OFF CHARACTERIS	TICS				
Collector-Emitter Breakd	own Voltage				
$I_C = 100 \text{ mAdc}$	2N4237 2N4238 2N4239	V _{(BR)CEO}		50 80 100	Vdc
Emitter-Base Cutoff Curr	ent	т		0.5	mAdc
$V_{EB} = 6.0 \text{ Vdc}$		I_{EBO}		0.5	mAdc
Collector-Emitter Cutoff	Current				
$V_{CE} = 90 \text{ Vdc}, V_{BE} = 1$	1.5 Vdc				
$V_{CE} = 50 \text{ Vdc}$	2N4237	I_{CEX}		100	nAdc
$V_{CE} = 80 \text{ Vdc}$	2N4238			100	
$V_{CE} = 10 \text{ Vdc}$	2N4239			100	
Collector-Base Cutoff Cu	irrent				
$V_{CE} = 50 \text{ Vdc}$	2N4237	T .		100	4
$V_{CE} = 80 \text{ Vdc}$	2N4238	I_{CBO}		100	nAdc
$V_{CE} = 10 \text{ Vdc}$	2N4239			100	

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²⁾ Derate linearly 34 mW/ $^{\circ}$ C for T_C > +25 $^{\circ}$ C

2N4237, 4238, 4239 JAN, JANTX, JANTXV

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS (3)				
Forward Current Transfer Ratio				
$I_C = 250 \text{ mAdc}, V_{CE} = 1.0 \text{ Vdc}$	h_{FE}	30	150	
$I_C = 500 \text{ mAdc}, V_{CE} = 1.0 \text{ Vdc}$		30		
Collector-Emitter Saturation Voltage				
$I_C = 500 \text{ Adc}, I_B = 50 \text{ Adc}$	V _{CE(sat)}		0.3	Vdc
$I_C = 1.0 \text{ Adc}, I_B = 0.1 \text{ Adc}$			0.6	
Base-Emitter Saturation Voltage				
$I_C = 500 \text{ Adc}, I_B = 50 \text{ Adc}$	V _{BE(sat)}		1.0	Vdc
$I_C = 1.0 \text{ Adc}, I_B = 0.1 \text{ Adc}$			1.5	
DYNAMIC CHARACTERISTICS				
Magnitude of Common Emitter Small-Signal				
Short Circuit Forward-Current Transfer Ratio	1. 1	3.0		
$I_C = 100 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}, f = 10 \text{ MHz}$	h _{fe}			
Output Capacitance	C		100	nE
$V_{CB} = 10 \text{ Vdc}, I_E = 0, f = 100 \text{ kHz}$	C_{obo}		100	pF

SAFE OPERATING AREA

DC Tests

 $T_C = +25^{\circ}C$, 1 Cycle, $t \ge 0.5$ s

Test 1

 $V_{CE} = 6.0 \text{ Vdc}, I_{C} = 1.0 \text{ Adc}$

Test 2

 V_{CE} = 12 Vdc, I_C = 500 mAdc

Test 3

$$\begin{split} &V_{CE} = 30 \text{ Vdc, } I_{C} = 166 \text{ mAdc} & 2N4237 \\ &V_{CE} = 50 \text{ Vdc, } I_{C} = 100 \text{ mAdc} & 2N4238 \\ &V_{CE} = 70 \text{ Vdc, } I_{C} = 71 \text{ mAdc} & 2N4239 \end{split}$$