



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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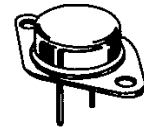
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NPN HIGH POWER SILICON TRANSISTOR
Qualified per MIL-PRF-19500/456
Devices
2N5302
2N5303
Qualified Level
**JANTX
JANTXV**
MAXIMUM RATINGS

Ratings	Symbol	2N5302	2N5303	Unit
Collector-Emitter Voltage	V_{CEO}	60	80	Vdc
Collector-Base Voltage	V_{CBO}	60	80	Vdc
Emitter-Base Voltage	V_{EBO}	5.0		Vdc
Collector Current	I_C	30	20	Adc
Base Current	I_B	7.5		Adc
Total Power Dissipation	P_T	@ $T_A = +25^{\circ}C^{(1)}$	5.0	W
		@ $T_C = +100^{\circ}C^{(2)}$	115	W/ $^{\circ}C$
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		$^{\circ}C$


TO-3*
(TO-204AA)

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.875	$^{\circ}C/W$

 1) Derate linearly 28.57 mW/ $^{\circ}C$ for $T_A = +25^{\circ}C$

 2) Derate linearly 1.14 W/ $^{\circ}C$ for $T_C = +100^{\circ}C$

*See appendix A for package outline

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Current $I_C = 200$ mAdc, $I_B = 0$	2N5302 2N5303	$V_{(BR)CEO}$	60 80	Vdc
Collector-Emitter Cutoff Current $V_{CE} = 60$ Vdc, $I_B = 0$	2N5302	I_{CEO}	10	μ Adc
$V_{CE} = 80$ Vdc, $I_B = 0$	2N5303		10	
Emitter-Base Cutoff Current $V_{EB} = 5.0$ Vdc, $I_C = 0$		I_{EBO}	5.0	μ Adc
Collector-Emitter Cutoff Current $V_{BE} = 1.5$ Vdc, $V_{CE} = 60$ Vdc	2N5302	I_{CEX}	5.0	μ Adc
$V_{BE} = 1.5$ Vdc, $V_{CE} = 80$ Vdc	2N5303		5.0	
Collector-Emitter Cutoff Current $V_{CE} = 60$ Vdc	2N5302	I_{CBO}	5.0	μ Adc
$V_{CE} = 80$ Vdc	2N5303		5.0	

2N5302, 2N5303 JAN SERIES

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS				
Forward-Current Transfer Ratio I _C = 1.0 Adc, V _{CE} = 2.0 Vdc I _C = 15 Adc, V _{CE} = 2.0 Vdc I _C = 10 Adc, V _{CE} = 2.0 Vdc I _C = 30 Adc, V _{CE} = 4.0 Vdc I _C = 20 Adc, V _{CE} = 4.0 Vdc	h _{FE}	40 15 15 5.0 5.0	60 60	
Base-Emitter Saturation Voltage I _C = 10 Adc, I _B = 1.0 Adc I _C = 15 Adc, I _B = 1.5 Adc I _C = 15 Adc, I _B = 1.5 Adc I _C = 20 Adc, I _B = 2.0 Adc I _C = 20 Adc, I _B = 4.0 Adc	V _{BE(sat)}		1.7 1.8 2.0 2.5 2.5	Vdc
Base-Emitter Non-Saturation Voltage V _{CE} = 2.0 Vdc; I _C = 15 Adc V _{CE} = 2.0 Vdc; I _C = 10 Adc V _{CE} = 4.0 Vdc; I _C = 30 Adc V _{CE} = 4.0 Vdc; I _C = 20 Adc	V _{BE}		1.8 1.5 3.0 2.5	Vdc
Collector-Emitter Saturation Voltage I _C = 10 Adc, I _B = 1.0 Adc I _C = 10 Adc, I _B = 1.0 Adc I _C = 15 Adc, I _B = 1.5 Adc I _C = 15 Adc, I _B = 1.5 Adc I _C = 20 Adc, I _B = 2.0 Adc I _C = 20 Adc, I _B = 4.0 Adc I _C = 30Adc, I _B = 6.0 Adc	V _{CE(sat)}		0.75 1.0 1.0 1.5 2.0 2.0 3.0	Vdc

DYNAMIC CHARACTERISTICS

Magnitude of Small-Signal Short Circuit Forward Current Transfer Ratio I _C = 1.0 Adc, V _{CE} = 10 Vdc, f = 1.0 MHz	h _{fe}	2.0	40	
Output Capacitance V _{CB} = 10 Vdc, I _E = 0, 100 kHz ≤ f ≤ 1.0 MHz	C _{obo}		800	pF

SWITCHING CHARACTERISTICS

Delay Time	V _{CC} = 30 Vdc; I _C = 10 Adc; I _B = 1.0 Adc	t _d	0.2	μs
Rise Time		t _r	0.9	μs
Storage Time		t _s	2.0	μs
Fall Time		t _f	1.0	μs

SAFE OPERATING AREA

DC Tests: T_C = 25°C, 1 Cycle, t ≥ 1.0 s	
Test 1	
V _{CE} = 6.67 Vdc, I _C = 30 Adc	2N5302
V _{CE} = 10 Vdc, I _C = 20 Adc	2N5303
Test 2	
V _{CE} = 20 Vdc, I _C = 10 Adc	2N5302; 2N5303
Test 3	
V _{CE} = 40 Vdc, I _C = 3.0Adc	2N5302; 2N5303
Test 4	
V _{CE} = 50 Vdc, I _C = 600 mAdc	2N5302
V _{CE} = 60 Vdc, I _C = 600 mAdc	2N5303
Clamped Switching: T_A = 25°C, V_{CE} = 15 Vdc	
Clamp Voltage = 60 Vdc, I _C = 30 Adc	2N5302
Clamp Voltage = 80 Vdc, I _C = 20 Adc	2N5303