



NPN Medium Power Silicon Transistor

2N3418, 2N3419, 2N3420 & 2N3421

2N3418S, 2N3419S, 2N3420S & 2N3421S



Features

- Available in commercial, JAN, JANTX, JANTXV, JANS and JANSR 100K rads (Si) per MIL-PRF-19500/393
- TO-5, TO-39 (TO-205AD) Package



Maximum Ratings

Ratings	Symbol	2N3418, S 2N3420, S	2N3419, S 2N3421, S	Units
Collector - Emitter Voltage	V_{CEO}	60	80	Vdc
Collector - Base Voltage	V_{CBO}	85	125	Vdc
Emitter - Base Voltage	V_{EBO}	8.0		Vdc
Collector Current $T_p \leq 1.0$ ms, duty cycle $\leq 50\%$	I_C	3.0 5.0		Adc
Total Power Dissipation @ $T_A = +25$ °C @ $T_C = +100$ °C	P_T	1.0 5.0		W W
Operating & Storage Temperature Range	T_{Op}, T_{stg}	-65 to +200		°C

Electrical Characteristics

OFF Characteristics	Symbol	Minimum	Maximum	Units
Collector - Emitter Breakdown Voltage $I_C = 50$ mAdc 2N3418, S, 2N3420, S 2N3419, S, 2N3421, S	$V_{(BR)CEO}$	60 80	- - -	Vdc
Collector - Emitter Cutoff Current $V_{CE} = 80$ Vdc, $V_{BE} = -0.5$ Vdc $V_{CE} = 120$ Vdc, $V_{BE} = -0.5$ Vdc 2N3418, S, 2N3420, S 2N3419, S, 2N3421, S	I_{CEX}	- - -	0.3 0.3	μ Adc
Collector - Emitter Cutoff Current $V_{CE} = 45$ Vdc $V_{CE} = 60$ Vdc 2N3418, S, 2N3420, S 2N3419, S, 2N3421, S	I_{CEO}	- - -	5.0 5.0	μ Adc
Emitter - Base Cutoff Current $V_{EB} = 6.0$ Vdc, $I_C = 0$ $V_{EB} = 8.0$ Vdc, $I_C = 0$	I_{EBO}	- - -	0.5 10.0	μ Adc

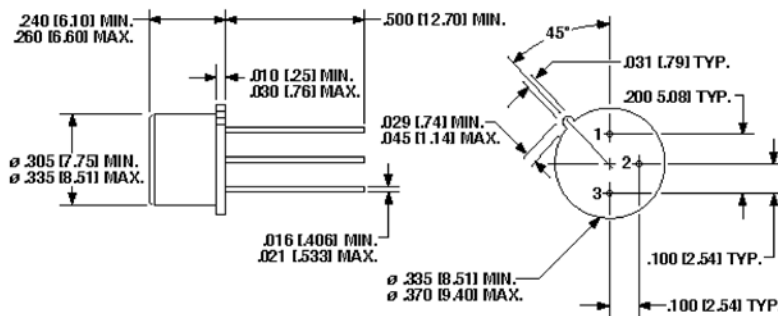


Electrical Characteristics -con't

ON Characteristics ⁽¹⁾		Symbol	Minimum	Maximum	Unit
Forward Current Transfer Ratio I _C = 100 mAdc, V _{CE} = 2.0 Vdc 2N3418, S, 2N3419, S 2N3420, S, 2N3421, S I _C = 1.0 Adc, V _{CE} = 2.0 Vdc 2N3418, S, 2N3419, S 2N3420, S, 2N3421, S I _C = 2.0 Adc, V _{CE} = 2.0 Vdc 2N3418, S, 2N3419, S 2N3420, S, 2N3421, S I _C = 5.0 Adc, V _{CE} = 5.0 Vdc 2N3418, S, 2N3419, S 2N3420, S, 2N3421, S		H _{FE}	20	60 120	
			40		
			20		
			40		
			15		
			30		
			10		
			15		
Base - Emitter Voltage I _C = 1.0 Adc, I _B = 0.1 Adc I _C = 2.0 Adc, I _B = 0.2 Adc		V _{BE(sat)}	0.6 0.7	1.2 1.4	Vdc
Collector - Emitter Saturation Voltage I _C = 1.0 Adc, I _B = 0.1 Adc I _C = 2.0 Adc, I _B = 0.2 Adc		V _{CE(sat)}	--- ---	0.25 0.5	Vdc
DYNAMIC Characteristics					
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio I _C = 0.1 Adc, V _{CE} = 10.0 Vdc, f = 20 MHz		h _{fe}	1.3	8.0	
Output Capacitance V _{CB} = 10 Vdc, I _E = 0, 100 kHz ≤ f ≤ 1.0 MHz		C _{obo}	---	150	pF
Switching Characteristics					
Delay Time	V _{BE(off)} = -3.7 Vdc	t _d	---	0.08	μs
Rise Time	I _C = 1.0 Adc, I _{B2} = 100 mAdc	t _r	---	0.22	μs
Storage Time	V _{BE(off)} = -3.7 Vdc	t _s	---	1.10	μs
Fall Time	I _C = 1.0 Adc, I _{B2} = -100 mAdc	t _f	---	0.20	μs
SAFE OPERATING AREA					
DC Tests:		T _C = 100 °C, 1 Cycle, t = 1.0 s s			
Test 1:		V _{CE} = 5.0 Vdc, I _C = 3.0 Adc			
Test 2:		V _{CE} = 37 Vdc, I _C = 0.4 Adc			
Test 3:		V _{CE} = 60 Vdc, I _C = 0.185 mAdc 2N3418, S; 2N3420, S			
		V _{CE} = 80 Vdc, I _C = 0.12 mAdc 2N3419, S; 2N3421, S			

Outline Drawing

2N3418, S, 2N3420, S &
2N3419, S, 2N3421, S



NOTE: Dimensions in Inches [mm]

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