

2N2218, A, AL JAN, JTX, JTXV, JANS 2N2219, A, AL JAN, JTX, JTXV, JANS



Processed per MIL-PRF-19500/251

NPN SWITCHING SILICON TRANSISTOR

MAXIMUM RATINGS

Ratings	Symbol	2N2218 2N2219	2N2218A; AL 2N2219A; AL	Unit
Collector-Emitter Voltage	V_{CEO}	30	50	Vdc
Collector-Base Voltage	V_{CBO}	60	75	Vdc
Emitter-Base Voltage	V_{EBO}	5.0	6.0	Vdc
Collector Current	I_C	800		mAdc
Total Power Dissipation	$@ T_A = +25^{\circ}C^{(1)}$ $@ T_C = +25^{\circ}C^{(2)}$	P_T	0.8	W
			3.0	W
Operating & Storage Junction Temp. Range	T_{op}, T_{stg}	-55 to +200		$^{\circ}C$

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	59	$^{\circ}C/mW$

1) Derate linearly 4.6 mW/ $^{\circ}C$ for $T_A > +25^{\circ}C$

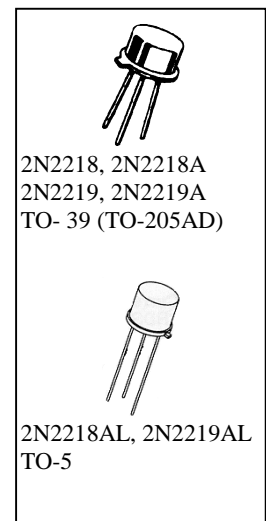
2) Derate linearly 17.0 mW/ $^{\circ}C$ for $T_C > +25^{\circ}C$

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage $I_E = 10$ mAdc	2N2218, 2N2219 2N2218A, AL, 2N2219A, AL	$V_{(BR)CEO}$	30 50	Vdc
Emitter-Base Cutoff Current $V_{EB} = 5.0$ Vdc $V_{EB} = 6.0$ Vdc AL $V_{EB} = 4.0$ Vdc	2N2218, 2N2219 2N2218A, AL, 2N2219A, AL All Types	I_{EBO}	10 10 10	μ Adc η Adc
Collector-Base Cutoff Current $V_{CE} = 30$ Vdc $V_{CE} = 50$ Vdc AL	2N2218, 2N2219 2N2218A, AL, 2N2219A, AL	I_{CES}	10 10	η Adc



2N2218, A, AL; 2N2219, A, AL JAN SERIES

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
Collector-Base Cutoff Current $V_{CB} = 50 \text{ Vdc}$ $V_{CB} = 60 \text{ Vdc}$ AL $V_{CB} = 60 \text{ Vdc}$ $V_{CB} = 75 \text{ Vdc}$ AL	I_{CBO}	2N2218, 2N2219	10	η_{Adc} μ_{Adc}
2N2218A, AL, 2N2219A,		10		
2N2218, 2N2219		10		
2N2218A, AL, 2N2219A,		10		
2N2218, 2N2219				
2N2218A, AL, 2N2219A,				

ON CHARACTERISTICS (3)

Forward-Current Transfer Ratio $I_C = 0.1 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$ $I_C = 1.0 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$ $I_C = 10 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$ $I_C = 150 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$ $I_C = 500 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$	h_{FE}	2N2218 2N2219 2N2218A, 2N2218AL 2N2219A, 2N2219AL	20 35 30 50				
2N2218 2N2219 2N2218A, 2N2218AL 2N2219A, 2N2219AL		25 50 35 75	150 325 150 325				
2N2218 2N2219 2N2218A, 2N2218AL 2N2219A, 2N2219AL		35 75 40 100					
2N2218, A, 2N2218AL 2N2219, A, 2N2219AL		40 100	120 300				
2N2218, A, 2N2218AL 2N2219, A, 2N2219AL		20 30					
Collector-Emitter Saturation Voltage $I_C = 150 \text{ mAdc}$, $I_B = 15 \text{ mAdc}$ AL $I_C = 500 \text{ mAdc}$, $I_B = 50 \text{ mAdc}$ AL		$V_{CE(sat)}$	2N2218, 2N2219 2N2218A, AL, 2N2219A,	0.4 0.3 1.6 1.0	Vdc		
2N2218, 2N2219 2N2218A, AL, 2N2219A,							
Base-Emitter Saturation Voltage $I_C = 150 \text{ mAdc}$, $I_B = 15 \text{ mAdc}$ AL $I_C = 500 \text{ mAdc}$, $I_B = 50 \text{ mAdc}$ AL			$V_{BE(sat)}$	2N2218, 2N2219 2N2218A, AL, 2N2219A,		0.6 0.6 2.6 2.0	Vdc
2N2218, 2N2219 2N2218A, AL, 2N2219A,							

DYNAMIC CHARACTERISTICS

Magnitude of Small-Signal Forward Current Transfer Ratio $I_C = 20 \text{ mAdc}$, $V_{CE} = 20 \text{ Vdc}$, $f = 100 \text{ MHz}$	$ h_{fe} $	2.5	12		
Small-Signal Forward Current Transfer Ratio $I_C = 1.0 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 1.0 \text{ kHz}$	h_{fe}	2N2218 2N2219 2N2218A, AL 2N2219A, AL	25 50 35 75		
Output Capacitance $V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, $100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$		C_{obo}		8.0	pF
Input Capacitance $V_{EB} = 0.5 \text{ Vdc}$, $I_C = 0$, $100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$		C_{ibo}		25	pF

(3) Pulse Test: Pulse Width = 300 μ s, Duty Cycle \leq 2.0%.