

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	@ $T_A = +25^{\circ}C^{(1)}$		0.8	W
	@ $T_C = +25^{\circ}C^{(2)}$		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 $T_A > +25^{\circ}C$

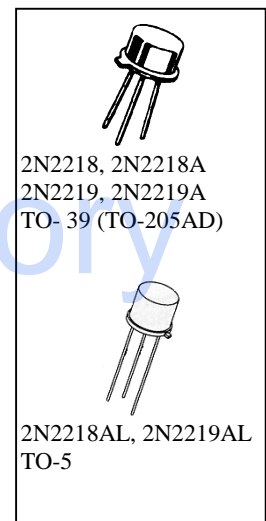
 2) Derate linearly 17.0 mW/ $^{\circ}C$ for $T_C > +25^{\circ}C$

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	2N2218, 2N2219	I_{EBO}	10	μ Adc
$V_{EB} = 6.0$ Vdc	2N2218A, AL, 2N2219A, AL		10	η Adc
$V_{EB} = 4.0$ Vdc	All Types		10	
Collector-Base Cutoff Current $V_{CE} = 30$ Vdc	2N2218, 2N2219	I_{CES}	10	η Adc
$V_{CE} = 50$ Vdc	2N2218A, AL, 2N2219A, AL		10	



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	20		
2N2219		35			
2N2218A, 2N2218AL		30			
2N2219A, 2N2219AL		50			
2N2218		25	150		
2N2219		50	325		
2N2218A, 2N2218AL		35	150		
2N2219A, 2N2219AL		75	325		
2N2218		35			
2N2219		75			
2N2218A, 2N2218AL		40			
2N2219A, 2N2219AL		100			
2N2218, A, 2N2218AL	40	120			
2N2219, A, 2N2219AL	100	300			
2N2218, A, 2N2218AL	20				
2N2219, A, 2N2219AL	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		0.4	Vdc
2N2218A, AL, 2N2219A,			0.3		
2N2218, 2N2219			1.6		
2N2218A, AL, 2N2219A,			1.0		
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	0.6	1.3	Vdc
2N2218A, AL, 2N2219A,		0.6	1.2		
2N2218, 2N2219			2.6		
2N2218A, AL, 2N2219A,			2.0		

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	25	
2N2219		50		
2N2218A, AL		35		
2N2219A, AL		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%.