

NPN-SWITCHING SILICON TRANSISTOR

Qualified per MIL-PRF-19500/251

DEVICES

2N2218	2N2219
2N2218A	2N2219A
2N2218AL	2N2219AL

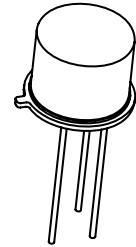
LEVELS

JAN
JANTX
JANTXV
JANS *

* Also available in Radiation Hardened versions. See datasheet for JANSR2N2218 & JANSR2N2219

ABSOLUTE MAXIMUM RATINGS ($T_C = +25^\circ\text{C}$ unless otherwise noted)

Parameters / Test Conditions	Symbol	2N2218 2N2219	2N221A; L 2N2219A; L	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		mA
Total Power Dissipation	P_T	@ $T_A = +25^\circ\text{C}$	0.8	W
		@ $T_C = +25^\circ\text{C}$	3.0	W
Operating & Storage Junction Temp. Range	T_{op}, T_{stg}	-55 to +200		$^\circ\text{C}$



TO-39 (TO-205AD)
 2N2218, 2N2218A
 2N2219, 2N2219A

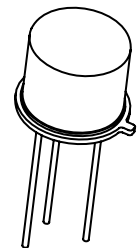
THERMAL CHARACTERISTICS

Parameters / Test Conditions	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	59	$^\circ\text{C/W}$

Note: (1) Derate linearly 4.6mW/ $^\circ\text{C}$ above $T_A > +25^\circ\text{C}$
 (2) Derate linearly 17.0mW/ $^\circ\text{C}$ above $T_C > +25^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A = +25^\circ\text{C}$, unless otherwise noted)

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage $I_E = 10\text{mA dc}$	$V_{(BR)CEO}$	30 50		Vdc
2N2218; 2N2219 2N2218A; 2N2219A; L				
Emitter-Base Cutoff Current $V_{EB} = 5.0\text{Vdc}$ $V_{EB} = 6.0\text{Vdc}$ $V_{EB} = 4.0\text{Vdc}$	I_{EBO}		10 10 10	$\mu\text{A dc}$ $\eta\text{A dc}$
2N2218; 2N2219				
2N2218A; 2N2219A; L All Types				
Collector-Base Cutoff Current $V_{CE} = 30\text{Vdc}$ $V_{CE} = 50\text{Vdc}$	I_{CES}		10 10	$\eta\text{A dc}$
2N2218; 2N2219 2N2218A; 2N2219A; L				



TO-5
 2N2218AL
 2N2219AL

NPN-SWITCHING SILICON TRANSISTOR

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ELECTRICAL CHARACTERISTICS ($T_A = +25^\circ\text{C}$, unless otherwise noted) (Con't)

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Collector-Base Cutoff Current $V_{CB} = 50\text{Vdc}$ $V_{CB} = 60\text{Vdc}$ $V_{CB} = 60\text{Vdc}$ $V_{CB} = 75\text{Vdc}$	I_{CBO}	2N2218; 2N2219 2N2218A; 2N2219A; L 2N2218; 2N2219 2N2218A; 2N2219A; L	10 10 10 10	η_{Ade} μ_{Ade}
ON CHARACTERISTICS (3)				
Forward-Current Transfer Ratio $I_C = 0.1\text{mAde}$, $V_{CE} = 10\text{Vdc}$ $I_C = 1.0\text{mAde}$, $V_{CE} = 10\text{Vdc}$ $I_C = 10\text{mAde}$, $V_{CE} = 10\text{Vdc}$ $I_C = 150\text{mAde}$, $V_{CE} = 10\text{Vdc}$ $I_C = 500\text{mAde}$, $V_{CE} = 10\text{Vdc}$	h_{FE}	2N2218 2N2219 2N2218A; 2N2218AL 2N2219A; 2N2219AL 2N2218 2N2219 2N2218A; 2N2218AL 2N2219A; 2N2219AL 2N2218 2N2219 2N2218A; 2N2218AL 2N2219A; 2N2219AL 2N2218; A; AL 2N2219; A; AL 2N2218; A; AL 2N2219; A; AL	20 35 30 50 25 50 35 75 35 75 40 100 40 100 20 30	150 325 150 325 120 300
Collector-Emitter Saturation Voltage $I_C = 150\text{mAde}$, $I_B = 15\text{mAde}$ $I_C = 500\text{mAde}$, $I_B = 50\text{mAde}$	$V_{CE(sat)}$	2N2218; 2N2219 2N2218A; 2N2219A; L 2N2218; 2N2219 2N2218A; 2N2219A; L	0.4 0.3 1.6 1.0	Vdc
Base-Emitter Saturation Voltage $I_C = 150\text{mAde}$, $I_B = 15\text{mAde}$ $I_C = 500\text{mAde}$, $I_B = 50\text{mAde}$	$V_{BE(sat)}$	2N2218; 2N2219 2N2218A; 2N2219A; L 2N2218; 2N2219 2N2218A; 2N2219A; L	0.6 0.6 2.6 2.0	Vdc