

2N718A JAN, JTX, JTXV 2N1613 JAN, JTX, JTXV 2N1613L JAN, JTX, JTXV



Processed per MIL-PRF-19500/181

LOW-POWER NPN SILICON TRANSISTOR

MAXIMUM RATINGS

Ratings	Symbol	Value	Units
Collector-Emitter Voltage	V_{CEO}	30	Vdc
Collector-Base Voltage	V_{CBO}	75	Vdc
Emitter-Base Voltage	V_{EBO}	7.0	Vdc
Collector Current	I_C	500	mAdc
Total Power Dissipation @ $T_A = +25^{\circ}\text{C}$ ⁽¹⁾	P_T	0.5	W
2N718A		0.8	
2N1613, L		1.8	
@ $T_C = +25^{\circ}\text{C}$ ⁽²⁾		3.0	
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-55 to +175	$^{\circ}\text{C}$

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	97	$^{\circ}\text{C/W}$
2N718A		58	
2N1613, L			

1) Derate linearly 4.57 mW/ $^{\circ}\text{C}$ for 2N1613, L and 2.85 mW/ $^{\circ}\text{C}$ for 2N718A for $T_A > +25^{\circ}\text{C}$

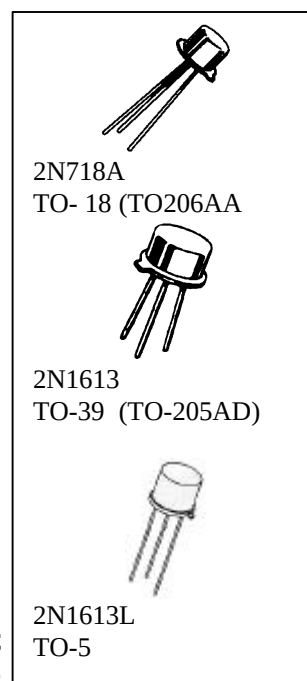
2) Derate linearly 17.2 mW/ $^{\circ}\text{C}$ for 2N1613, L and 10.3 mW/ $^{\circ}\text{C}$ for 2N718A for $T_C > +25^{\circ}\text{C}$

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

Characteristics	Symbol	Min.	Max.	Unit
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OFF CHARACTERISTICS

Collector-Base Breakdown Voltage $I_C = 100 \mu\text{Adc}$	$V_{(BR)CBO}$	75		Vdc
Emitter-Base Breakdown Current $I_E = 100 \mu\text{Adc}$	$V_{(BR)EBO}$	7.0		Vdc
Collector-Emitter Breakdown Voltage $I_C = 30 \text{ mAdc}$	$V_{(BR)CEO}$	30		Vdc



2N718A, 2N1613, 2N1613L JAN, SERIES

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
Collector-Emitter Breakdown Voltage $I_C = 10 \text{ mAdc}$, $R_{BE} = 10 \Omega$	$V_{(BR)CEO}$	50		Vdc
Collector-Base Cutoff Current $V_{CB} = 60 \text{ Vdc}$	I_{CBO}		10	ηAdc
Emitter-Base Cutoff Current $V_{EB} = 5.0 \text{ Vdc}$	I_{EBO}		10	ηAdc

ON CHARACTERISTICS (1)

Forward-Current Transfer Ratio $I_C = 0.1 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$ $I_C = 10 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$ $I_C = 150 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$ $I_C = 500 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$	h_{FE}	20 35 40 20	120	
Collector-Emitter Saturation Voltage $I_C = 150 \text{ mAdc}$, $I_B = 15 \text{ mAdc}$	$V_{CE(sat)}$		1.5	Vdc
Base-Emitter Saturation Voltage $I_C = 150 \text{ mAdc}$, $I_B = 15 \text{ mAdc}$	$V_{BE(sat)}$		1.3	Vdc

DYNAMIC CHARACTERISTICS

Magnitude of Small-Signal Forward Current Transfer Ratio $I_C = 50 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 20 \text{ MHz}$	$ h_{fe} $	3.0		
Small-Signal Forward Current Transfer Ratio $I_C = 1.0 \text{ mAdc}$, $V_{CE} = 5.0 \text{ Vdc}$, $f = 1.0 \text{ kHz}$ $I_C = 5.0 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 1.0 \text{ kHz}$	h_{fe}	30 35	100 150	
Output Capacitance $V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, $100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	C_{obo}		25	pF

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