

PNP SILICON SWITCHING TRANSISTOR

Qualified per MIL-PRF-19500/512

Devices

2N4029

2N4033

Qualified Level

JAN
JANTX
JANTXV

MAXIMUM RATINGS

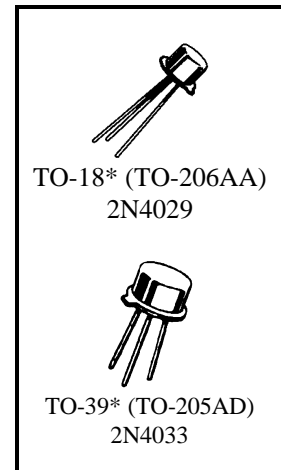
Ratings	Symbol	VALUE		Unit
Collector-Emitter Voltage	V_{CEO}	80		Vdc
Collector-Base Voltage	V_{CBO}	80		Vdc
Emitter-Base Voltage	V_{EBO}	5.0		Vdc
Collector Current	I_C	1.0		Adc
		2N4029 ¹	2N4033 ²	
Total Power Dissipation @ $T_A = +25^{\circ}\text{C}$	P_T	0.5	0.8	W
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-55 to +200		$^{\circ}\text{C}$

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	25.0	$^{\circ}\text{C}/\text{W}$

1) Derate linearly 2.86 mW/ $^{\circ}\text{C}$ for $T_A > +25^{\circ}\text{C}$

2) Derate linearly 4.56 mW/ $^{\circ}\text{C}$ for $T_A > +25^{\circ}\text{C}$



*See appendix A for package outline

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

Characteristics	Symbol	Min.	Max.	Unit
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OFF CHARACTERISTICS

Collector-Base Cutoff Current $V_{CB} = 80 \text{ Vdc}$ $V_{CB} = 60 \text{ Vdc}$	I_{CBO}		10 10	μAdc ηAdc
Emitter-Base Cutoff Current $V_{BE} = 5.0 \text{ Vdc}$ $V_{BE} = 3.0 \text{ Vdc}$	I_{EBO}		25 10	μAdc ηAdc
Collector-Emitter Cutoff Voltage $V_{BE} = 40 \text{ Vdc}; V_{CE} = 60 \text{ Vdc}$	I_{CEX}		25	ηAdc

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
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DC CHARACTERISTICS⁽³⁾

Forward-Current Transfer Ratio I _C = 100 μAdc, V _{CE} = 5.0 Vdc I _C = 100 mAdc, V _{CE} = 5.0 Vdc I _C = 500 mAdc, V _{CE} = 5.0 Vdc I _C = 1.0 Adc, V _{CE} = 5.0 Vdc	h _{FE}	50 100 70 25	300	
Collector-Emitter Saturation Voltage I _C = 150 mAdc, I _B = 15 mAdc I _C = 500 mAdc, I _B = 50 mAdc I _C = 1.0 Adc, I _B = 100 mAdc	V _{CE(sat)}		0.15 0.50 1.0	Vdc
Base-Emitter Voltage I _C = 150 mAdc, I _B = 15 mAdc I _C = 500 mAdc, I _B = 50 mAdc	V _{BE(sat)}		0.9 1.2	Vdc

DYNAMIC CHARACTERISTICS

Magnitude of Common Emitter Small-Signal Short-Circuit Forward-Current Transfer Ratio I _C = 50 mAdc, V _{CE} = 10 Vdc, f = 100 MHz	h _{fe}	1.5	6.0	
Output Capacitance V _{CB} = 10 Vdc, I _E = 0, 100 kHz ≤ f ≤ 1.0 MHz	C _{obo}		20	pF
Input Capacitance V _{EB} = 0.5 Vdc, I _C = 0, 100 kHz ≤ f ≤ 1.0 MHz	C _{ibo}		80	pF

SWITCHING CHARACTERISTICS

On-Time V _{CC} = 31.9 Vdc; I _C = 500 mAdc; I _{B1} = 50 mAdc	t _d		15	ηs
Rise Time V _{CC} = 31.9 Vdc; I _C = 500 mAdc; I _{B1} = 50 mAdc	t _r		25	ηs

(3) Pulse Test: Pulse Width = 300μs, Duty Cycle ≤ 2.0%.