

PNP SWITCHING SILICON TRANSISTOR

Qualified per MIL-PRF-19500/396

Devices

2N3762	2N3763	2N3764	2N3765
2N3762L	2N3763L		

Qualified Level

JAN
JANTX
JANTXV

MAXIMUM RATINGS

Ratings	Symbol	2N3762* 2N3764	2N3763* 2N3765	Unit
Collector-Emitter Voltage	V_{CEO}	40	60	Vdc
Collector-Base Voltage	V_{CBO}	40	60	Vdc
Emitter-Base Voltage	V_{EBO}	5.0		Vdc
Collector Current	I_C	1.5		Adc
		2N3762* ¹ 2N3763*	2N3764 ² 2N3765	
Total Power Dissipation @ $T_A = +25^{\circ}\text{C}$	P_T	1.0	0.5	W
Operating & Storage Junction Temp. Range	T_{op}, T_{stg}	-55 to +200		$^{\circ}\text{C}$

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.		Unit
		2N3762* 2N3763*	2N3764 2N3765	
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	60	88	$^{\circ}\text{C/W}$

*Electrical characteristics for "L" suffix devices are identical to the "non L" corresponding devices

1) Derate linearly at 5.71 mW/ $^{\circ}\text{C}$ for $T_A > +25^{\circ}\text{C}$

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



TO-39* (TO-205AD)
2N3762, 2N3763



TO-5*
2N3762L, 2N3763L



TO-46* (TO-206AB)
2N3764, 2N3765

*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-Emitter Breakdown Current $I_C = 10 \text{ mA dc}$	2N3762, 2N3764 2N3763, 2N3765	$V_{(BR)CEO}$	40 60	Vdc
Collector-Base Cutoff Current $V_{CB} = 20 \text{ Vdc}$ $V_{CB} = 30 \text{ Vdc}$ $V_{CB} = 40 \text{ Vdc}$ $V_{CB} = 60 \text{ Vdc}$	2N3762, 2N3764 2N3763, 2N3765 2N3762, 2N3764 2N3763, 2N3765	I_{CBO}	 100 100 10 10	$\eta \text{ Adc}$ $\mu \text{ Adc}$

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
Collector-Emitter Cutoff Current $V_{EB} = 2.0 \text{ Vdc}$, $V_{CE} = 20 \text{ Vdc}$ $V_{EB} = 2.0 \text{ Vdc}$, $V_{CE} = 30 \text{ Vdc}$	I_{CEX}		100 100	ηAdc
Emitter-Base Cutoff Current $V_{EB} = 2.0 \text{ Vdc}$ $V_{EB} = 5.0 \text{ Vdc}$	I_{EBO}		200 10 10	ηAdc μAdc

ON CHARACTERISTICS (3)

Forward-Current Transfer Ratio $I_C = 10 \text{ mAdc}$, $V_{CE} = 1.0 \text{ Vdc}$ $I_C = 150 \text{ mAdc}$, $V_{CE} = 1.0 \text{ Vdc}$ $I_C = 500 \text{ mAdc}$, $V_{CE} = 1.0 \text{ Vdc}$ $I_C = 1.0 \text{ Adc}$, $V_{CE} = 1.5 \text{ Vdc}$ $I_C = 1.5 \text{ Adc}$, $V_{CE} = 5.0 \text{ Vdc}$	h_{FE}	35 40 40 30 20 30 20	140 120 80	
Collector-Emitter Saturation Voltage $I_C = 10 \text{ mAdc}$, $I_B = 1.0 \text{ mAdc}$ $I_C = 150 \text{ mAdc}$, $I_B = 15 \text{ mAdc}$ $I_C = 500 \text{ mAdc}$, $I_B = 50 \text{ mAdc}$ $I_C = 1.0 \text{ Adc}$, $I_B = 100 \text{ mAdc}$	$V_{CE(sat)}$		0.1 0.22 0.5 0.9	Vdc
Base-Emitter Saturation Voltage $I_C = 10 \text{ mAdc}$, $I_B = 1.0 \text{ mAdc}$ $I_C = 150 \text{ mAdc}$, $I_B = 15 \text{ mAdc}$ $I_C = 500 \text{ mAdc}$, $I_B = 50 \text{ mAdc}$ $I_C = 1.0 \text{ Adc}$, $I_B = 100 \text{ mAdc}$	$V_{BE(sat)}$	0.9	0.8 1.0 1.2 1.4	Vdc

DYNAMIC CHARACTERISTICS

Forward Current Transfer Ratio, Magnitude $I_C = 50 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 100 \text{ MHz}$	$ h_{fe} $	1.8 1.5	6.0 6.0	
Output Capacitance $V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, $100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	C_{obo}		25	pF
Input Capacitance $V_{EB} = 0.5 \text{ Vdc}$, $I_C = 0$, $100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	C_{ibo}		80	pF

SWITCHING CHARACTERISTICS

Delay Time	$V_{CC} = 30 \text{ Vdc}$, $V_{EB} = 0$,	t_d	8.0	ηs
Rise Time	$I_C = 1.0 \text{ mAdc}$, $I_{B1} = 100 \text{ mAdc}$	t_r	35	ηs
Storage Time	$V_{CC} = 30 \text{ Vdc}$, $V_{EB} = 0$,	t_s	80	ηs
Fall Time	$I_C = 1.0 \text{ mAdc}$, $I_{B1} = 100 \text{ mAdc}$	t_f	35	ηs

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