

PNP POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/441

Devices

2N3740

2N3741

Qualified Level

JAN
JANTX
JANTXV

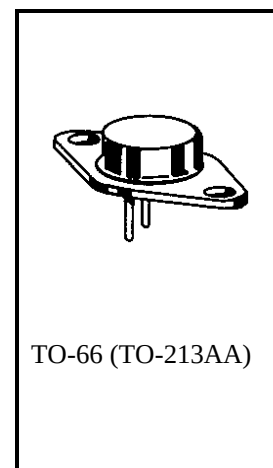
MAXIMUM RATINGS

Ratings	Symbol	2N3740	2N3741	Unit
Collector-Emitter Voltage	V_{CEO}	60	80	Vdc
Collector-Base Voltage	V_{CBO}	60	80	Vdc
Emitter-Base Voltage	V_{EBO}	7.0		Vdc
Base Current	I_B	2.0		Adc
Collector Current	I_C	4.0		Adc
Total Power Dissipation @ $T_C = +25^{\circ}\text{C}$ ⁽¹⁾ @ $T_C = +100^{\circ}\text{C}$	P_T	25 14		W W
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		$^{\circ}\text{C}$

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	7.0	$^{\circ}\text{C/W}$

1) Derate linearly @143 mW/ $^{\circ}\text{C}$ for $T_C > +25^{\circ}\text{C}$



*See Appendix A for
Package Outline

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

Characteristics	Symbol	Min.	Max.	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage $I_C = 100 \text{ mAdc}$	2N3740 2N3741	$V_{(BR)CEO}$	60 80	Vdc
Collector-Emitter Cutoff Current $V_{CE} = 40 \text{ Vdc}$ $V_{CE} = 60 \text{ Vdc}$	2N3740 2N3741	I_{CEO}	10 10	μAdc
Collector-Emitter Cutoff Current $V_{CE} = 60 \text{ Vdc}, V_{BE} = 1.5 \text{ Vdc}$ $V_{CE} = 80 \text{ Vdc}, V_{BE} = 1.5 \text{ Vdc}$	2N3740 2N3741	I_{CEX}	300 300	ηAdc
Collector-Base Cutoff Current $V_{CB} = 60 \text{ Vdc}$ $V_{CB} = 80 \text{ Vdc}$	2N3740 2N3741	I_{CBO}	100 100	ηAdc
Emitter-Base Cutoff Current $V_{EB} = 7.0 \text{ Vdc}$		I_{EBO}	100	ηAdc

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS ⁽²⁾				
Forward-Current Transfer Ratio $I_C = 100 \text{ mAdc}, V_{CE} = 1.0 \text{ Vdc}$ $I_C = 250 \text{ mAdc}, V_{CE} = 1.0 \text{ Vdc}$ $I_C = 500 \text{ mAdc}, V_{CE} = 1.0 \text{ Vdc}$ $I_C = 1.0 \text{ Adc}, V_{CE} = 1.0 \text{ Vdc}$ $I_C = 4.0 \text{ Adc}, V_{CE} = 5.0 \text{ Vdc}$	h_{FE}	40 30 20 10 3.0	120	
Collector-Emitter Saturation Voltage $I_C = 250 \text{ mAdc}, I_B = 25 \text{ mAdc}$ $I_C = 1.0 \text{ Adc}, I_B = 125 \text{ mAdc}$	$V_{CE(sat)}$		0.4 0.6	Vdc
Base-Emitter Voltage $I_C = 250 \text{ mAdc}, V_{CE} = 1.0 \text{ Vdc}$	$V_{BE(on)}$		1.0	Vdc

DYNAMIC CHARACTERISTICS

Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 100 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}, f = 5.0 \text{ MHz}$	$ h_{fe} $	1.0	12	
Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 50 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}, f = 1.0 \text{ kHz}$	h_{fe}	25	250	
Output Capacitance $V_{CB} = 10 \text{ Vdc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	C_{obo}		100	pF

SWITCHING CHARACTERISTICS

Turn-On Time $V_{CC} = 30 \text{ Vdc}; I_C = 1.0 \text{ Adc}; I_B = 0.1 \text{ Adc}$	t_{on}		400	μs
Turn-Off Time $V_{CC} = 30 \text{ Vdc}; I_C = 1.0 \text{ Adc}; I_B = I_C = 0.1 \text{ Adc}$	t_{off}		1.0	μs

SAFE OPERATING AREA**DC Tests** $T_C = +25^\circ\text{C}, 1 \text{ Cycle}, t = 1.0 \text{ s}$ **Test 1** $V_{CE} = 6.25 \text{ Vdc}, I_C = 4.0 \text{ Adc}$ **Test 2** $V_{CE} = 20 \text{ Vdc}, I_C = 1.25 \text{ Adc}$ **Test 3** $V_{CE} = 50 \text{ Vdc}, I_C = 150 \text{ mAdc}$ 2N3740 $V_{CE} = 65 \text{ Vdc}, I_C = 150 \text{ mAdc}$ 2N3741(2) Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.