

## PNP POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/441

### Devices

2N3740

2N3741

### Qualified Level

JAN  
JANTX  
JANTXV

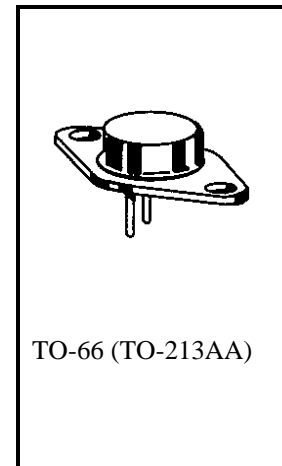
### MAXIMUM RATINGS

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	$P_T$	@ $T_C = +25^{\circ}C$ <sup>(1)</sup>	25	W
		@ $T_C = +100^{\circ}C$	14	W
Operating & Storage Junction Temperature Range	$T_J, T_{stg}$	-65 to +200		$^{\circ}C$

### THERMAL CHARACTERISTICS

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

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



\*See Appendix A for Package Outline

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

Characteristics	Symbol	Min.	Max.	Unit
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### OFF CHARACTERISTICS

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

**ELECTRICAL CHARACTERISTICS (con't)**

Characteristics	Symbol	Min.	Max.	Unit
<b>ON CHARACTERISTICS <sup>(2)</sup></b>				
Forward-Current Transfer Ratio I <sub>C</sub> = 100 mA <sub>dc</sub> , V <sub>CE</sub> = 1.0 V <sub>dc</sub> I <sub>C</sub> = 250 mA <sub>dc</sub> , V <sub>CE</sub> = 1.0 V <sub>dc</sub> I <sub>C</sub> = 500 mA <sub>dc</sub> , V <sub>CE</sub> = 1.0 V <sub>dc</sub> I <sub>C</sub> = 1.0 A <sub>dc</sub> , V <sub>CE</sub> = 1.0 V <sub>dc</sub> I <sub>C</sub> = 4.0 A <sub>dc</sub> , V <sub>CE</sub> = 5.0 V <sub>dc</sub>	h <sub>FE</sub>	40 30 20 10 3.0	120	
Collector-Emitter Saturation Voltage I <sub>C</sub> = 250 mA <sub>dc</sub> , I <sub>B</sub> = 25 mA <sub>dc</sub> I <sub>C</sub> = 1.0 A <sub>dc</sub> , I <sub>B</sub> = 125 mA <sub>dc</sub>	V <sub>CE(sat)</sub>		0.4 0.6	V <sub>dc</sub>
Base-Emitter Voltage I <sub>C</sub> = 250 mA <sub>dc</sub> , V <sub>CE</sub> = 1.0 V <sub>dc</sub>	V <sub>BE(on)</sub>		1.0	V <sub>dc</sub>

**DYNAMIC CHARACTERISTICS**

Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio I <sub>C</sub> = 100 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub> , f = 5.0 MHz	h <sub>fe</sub>	1.0	12	
Small-Signal Short-Circuit Forward Current Transfer Ratio I <sub>C</sub> = 50 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub> , f = 1.0 kHz	h <sub>fe</sub>	25	250	
Output Capacitance V <sub>CB</sub> = 10 V <sub>dc</sub> , I <sub>E</sub> = 0, 100 kHz ≤ f ≤ 1.0 MHz	C <sub>obo</sub>		100	pF

**SWITCHING CHARACTERISTICS**

Turn-On Time V <sub>CC</sub> = 30 V <sub>dc</sub> ; I <sub>C</sub> = 1.0 A <sub>dc</sub> ; I <sub>B</sub> = 0.1 A <sub>dc</sub>	t <sub>on</sub>		400	μs
Turn-Off Time V <sub>CC</sub> = 30 V <sub>dc</sub> ; I <sub>C</sub> = 1.0 A <sub>dc</sub> ; I <sub>B</sub> = I <sub>B</sub> = 0.1 A <sub>dc</sub>	t <sub>off</sub>		1.0	μs

**SAFE OPERATING AREA**

<b>DC Tests</b> T <sub>C</sub> = +25°C, 1 Cycle, t = 1.0 s	
<b>Test 1</b> V <sub>CE</sub> = 6.25 V <sub>dc</sub> , I <sub>C</sub> = 4.0 A <sub>dc</sub>	
<b>Test 2</b> V <sub>CE</sub> = 20 V <sub>dc</sub> , I <sub>C</sub> = 1.25 A <sub>dc</sub>	
<b>Test 3</b> V <sub>CE</sub> = 50 V <sub>dc</sub> , I <sub>C</sub> = 150 mA <sub>dc</sub> 2N3740 V <sub>CE</sub> = 65 V <sub>dc</sub> , I <sub>C</sub> = 150 mA <sub>dc</sub> 2N3741	

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