

PNP POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/441

DEVICES

2N3740 2N3741

LEVELS

**JAN
 JANTX
 JANTXV
 JANS**

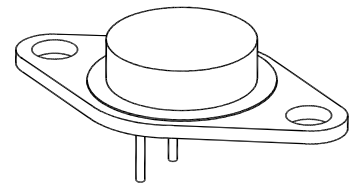
ABSOLUTE MAXIMUM RATINGS ($T_C = +25^\circ\text{C}$ unless otherwise noted)

Parameters / Test Conditions	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	25 14		W
		@ $T_A = +25^\circ\text{C}$ ⁽¹⁾ @ $T_C = +100^\circ\text{C}$		
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		$^\circ\text{C}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	7.0		$^\circ\text{C/W}$

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

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

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



TO-66 (TO-213AA)

* See Appendix A for Package Outline

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

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

DYNAMIC CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 100\text{mA dc}$, $V_{CE} = 10\text{V dc}$, $f = 5.0\text{MHz}$	$ h_{fe} $	1.0	12	
Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 50\text{mA dc}$, $V_{CE} = 10\text{V dc}$, $f = 1.0\text{kHz}$	h_{fe}	25	250	
Output Capacitance $V_{CB} = 10\text{V dc}$, $I_E = 0$, $100\text{kHz} \leq f \leq 1.0\text{MHz}$	C_{obo}		100	pF

SWITCHING CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Turn-On Time $V_{CC} = 30\text{V dc}$; $I_C = 1.0\text{A dc}$; $I_B = 0.1\text{A dc}$	t_{on}		400	μs
Turn-Off Time $V_{CC} = 30\text{V dc}$; $I_C = 1.0\text{A dc}$; $I_{B1} = I_{B2} = 0.1\text{A dc}$	t_{off}		1.0	μs

SAFE OPERATING AREA

DC Tests	
$T_C = +25^\circ\text{C}$, 1 Cycle, $t = 1.0\text{s}$	
Test 1	
$V_{CE} = 6.25\text{V dc}$, $I_C = 4.0\text{A dc}$	
Test 2	
$V_{CE} = 20\text{V dc}$, $I_C = 1.25\text{A dc}$	
Test 3	
$V_{CE} = 50\text{V dc}$, $I_C = 150\text{mA dc}$	2N3740
$V_{CE} = 65\text{V dc}$, $I_C = 150\text{mA dc}$	2N3741

(2) Pulse Test: Pulse Width = $300\mu\text{s}$, Duty Cycle $\leq 2.0\%$.