

PNP POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/441

Devices

2N3740

2N3741

Qualified Level

JAN
JANTX
JANTXV

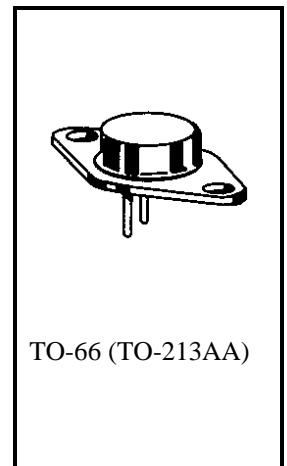
MAXIMUM RATINGS

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	25	14	W
		@ $T_C = +25^{\circ}C$ ⁽¹⁾		
		@ $T_C = +100^{\circ}C$		
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
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage $I_C = 100$ mAdc	$V_{(BR)CEO}$	60 80		Vdc
Collector-Emitter Cutoff Current $V_{CE} = 40$ Vdc	I_{CEO}		10	μ Adc
$V_{CE} = 60$ Vdc			10	
Collector-Emitter Cutoff Current $V_{CE} = 60$ Vdc, $V_{BE} = 1.5$ Vdc	I_{CEX}		300	η Adc
$V_{CE} = 80$ Vdc, $V_{BE} = 1.5$ Vdc			300	
Collector-Base Cutoff Current $V_{CB} = 60$ Vdc	I_{CBO}		100	η Adc
$V_{CB} = 80$ Vdc			100	
Emitter-Base Cutoff Current $V_{EB} = 7.0$ Vdc	I_{EBO}		100	η Adc

2N3740, 2N3741 JAN SERIES

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 $V_{CC} = 30 \text{ Vdc}; I_C = 1.0 \text{ Adc}; I_B = I_B = 0.1 \text{ Adc}$	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%.