

2N3740 & 2N3741



PNP Power Silicon Transistor

Rev. V1

Features

- Available in JAN, JANTX, JANTXV per MIL-PRF-19500/441
- TO-66 (TO-213AA) Package



Electrical Characteristics

Parameter	Test Conditions	Symbol	Units	Min.	Max.
Off Characteristics					
Collector - Emitter Breakdown Voltage	$I_C = 100 \text{ mAdc}$, 2N3740 $I_C = 100 \text{ mAdc}$, 2N3741	$V_{(BR)CEO}$	Vdc	60 80	—
Collector - Emitter Cutoff Current	$V_{CE} = 40 \text{ Vdc}$, 2N3740 $V_{CE} = 60 \text{ Vdc}$, 2N3741	I_{CEO}	μAdc	—	10
Collector - Emitter Cutoff Current	$V_{CE} = 60 \text{ Vdc}$, $V_{BE} = 1.5 \text{ Vdc}$, 2N3740 $V_{CE} = 80 \text{ Vdc}$, $V_{BE} = 1.5 \text{ Vdc}$, 2N3741	I_{CEX}	μAdc	—	300
Collector - Base Cutoff Current	$V_{CE} = 60 \text{ Vdc}$, 2N3740 $V_{CE} = 80 \text{ Vdc}$, 2N3741	I_{CBO}	μAdc	—	100
Emitter - Base Cutoff Current	$V_{EB} = 7 \text{ Vdc}$	I_{EBO}	μAdc	—	100
On Characteristics¹					
Forward Current Transfer Ratio	$I_C = 100 \text{ mAdc}$, $V_{CE} = 1 \text{ Vdc}$ $I_C = 250 \text{ mAdc}$, $V_{CE} = 1 \text{ Vdc}$ $I_C = 500 \text{ mAdc}$, $V_{CE} = 1 \text{ Vdc}$ $I_C = 1 \text{ Adc}$, $V_{CE} = 1 \text{ Vdc}$ $I_C = 4 \text{ Adc}$, $V_{CE} = 5 \text{ Vdc}$	H_{FE}	-	40 30 20 10 3	120
Collector - Emitter Saturation Voltage	$I_C = 250 \text{ mAdc}$, $I_B = 25 \text{ mAdc}$ $I_C = 1 \text{ Adc}$, $I_B = 1.25 \text{ mA}$	$V_{CE(SAT)}$	Vdc	—	0.4 0.6
Base - Emitter Voltage	$I_C = 250 \text{ mAdc}$, $V_{CE} = 1 \text{ Vdc}$	$V_{BE(ON)}$	Vdc	—	1.0
Dynamic Characteristics					
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio	$I_C = 100 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 5 \text{ MHz}$	$ h_{FE} $	-	1	12
Small-Signal Short-Circuit Forward Current Transfer Ratio	$I_C = 50 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 1 \text{ kHz}$	$ h_{FE} $	-	25	250
Output Capacitance	$V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, $100 \text{ kHz} \leq f \leq 1 \text{ MHz}$	C_{OBO}	pF	—	100
Switching Characteristics					
Turn-On Time	$V_{CC} = 30 \text{ Vdc}$; $I_C = 0.1 \text{ Adc}$; $I_{B1} = 0.1 \text{ Adc}$	T_{ON}	μs	—	400
Turn-Off Time	$V_{CC} = 30 \text{ Vdc}$; $I_C = 1 \text{ Adc}$; $I_{B1} - I_{B2} = 0.1 \text{ Adc}$	T_{OFF}	μs	—	1
Safe Operating Area					
DC Tests:	$T_C = +25^\circ\text{C}$, 1 Cycle, $t = 1.0 \text{ s}$				
Test 1:	$V_{CE} = 6.25 \text{ Vdc}$, $I_C = 4.0 \text{ Adc}$				
Test 2:	$V_{CE} = 20 \text{ Vdc}$, $I_C = 1.25 \text{ Adc}$				
Test 3:	$V_{CE} = 50 \text{ Vdc}$, $I_C = 150 \text{ Adc}$, 2N3740				
	$V_{CE} = 65 \text{ Vdc}$, $I_C = 150 \text{ Adc}$, 2N3741				

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

Absolute Maximum Ratings

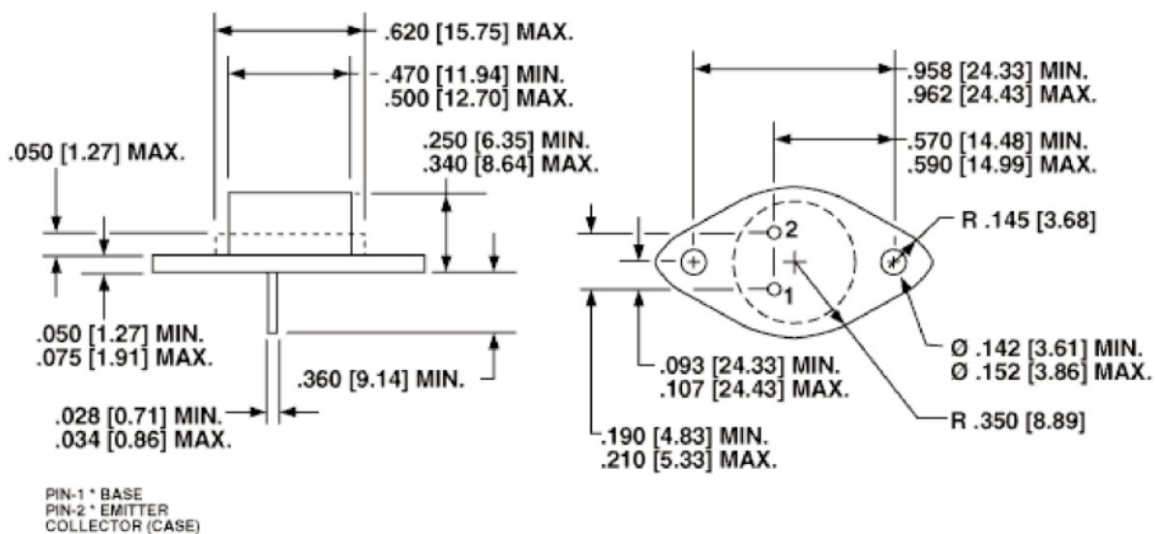
Ratings	Symbol	Value
Collector - Emitter Voltage 2N3740 2N3741	V_{CEO}	60 Vdc 80 Vdc
Collector - Base Voltage 2N3740 2N3741	V_{CBO}	60 Vdc 80 Vdc
Emitter - Base Voltage	V_{EBO}	7 Vdc
Base Current	I_B	2 Adc
Collector Current	I_C	4 Adc
Total Power Dissipation @ $T_A = +25^\circ\text{C}$ @ $T_C = +100^\circ\text{C}$	P_T	3 W 14 W
Operating & Storage Temperature Range	T_{OP}, T_{STG}	-65°C to $+175^\circ\text{C}$

1. Derate linearly @ 0.428 mW / °C for $T_C > +25^\circ\text{C}$.

Thermal Characteristics

Characteristics	Symbol	Max. Value
Thermal Resistance, Junction to Case	$R_{\theta JC}$	7°C/W

Outline Drawing



NOTE: Dimensions in Inches [mm]

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