

# 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.
<b>Off Characteristics</b>					
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	$I_{CEO}$	$\mu\text{Adc}$	—	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	$I_{CEX}$	$\mu\text{Adc}$	—	300
Collector - Base Cutoff Current	$V_{CE} = 60 \text{ Vdc}$ , 2N3740 $V_{CE} = 80 \text{ Vdc}$ , 2N3741	$I_{CBO}$	$\mu\text{Adc}$	—	100
Emitter - Base Cutoff Current	$V_{EB} = 7 \text{ Vdc}$	$I_{EBO}$	$\mu\text{Adc}$	—	100
<b>On Characteristics<sup>1</sup></b>					
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
<b>Dynamic Characteristics</b>					
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
<b>Switching Characteristics</b>					
Turn-On Time	$V_{CC} = 30 \text{ Vdc}$ ; $I_C = 0.1 \text{ Adc}$ ; $I_{B1} = 0.1 \text{ Adc}$	$T_{ON}$	$\mu\text{s}$	—	400
Turn-Off Time	$V_{CC} = 30 \text{ Vdc}$ ; $I_C = 1 \text{ Adc}$ ; $I_{B1} - I_{B2} = 0.1 \text{ Adc}$	$T_{OFF}$	$\mu\text{s}$	—	1
<b>Safe Operating Area</b>					
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				

<sup>1</sup> 1. Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

### Absolute Maximum Ratings

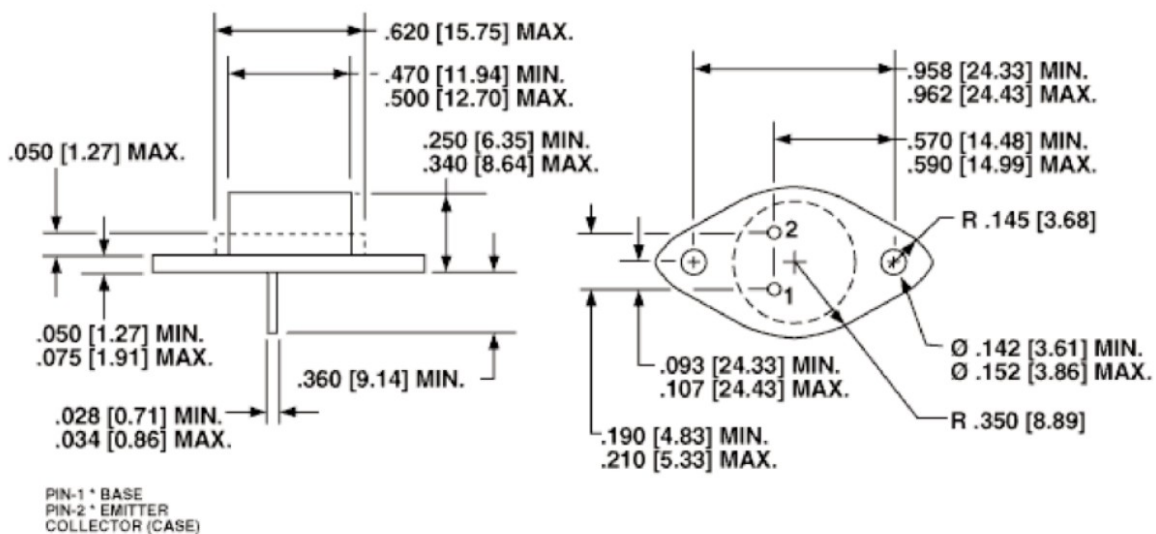
Ratings	Symbol	Value
Collector - Emitter Voltage 2N3740 2N3741	$V_{CEO}$	60 Vdc 80 Vdc
Collector - Base Voltage 2N3740 2N3741	$V_{CBO}$	60 Vdc 80 Vdc
Emitter - Base Voltage	$V_{EBO}$	7 Vdc
Base Current	$I_B$	2 Adc
Collector Current	$I_C$	4 Adc
Total Power Dissipation @ $T_A = +25^\circ\text{C}$ @ $T_C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

### Outline Drawing



NOTE: Dimensions in Inches [mm]

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