2N3766 & 2N3767

NPN Power Silicon Transistor

Rev. V1

Features

- Available in JAN, JANTX, JANTXV per MIL-PRF-19500/518
- TO-66 (TO-213AA) Package

Electrical Characteristics

Parameter	Test Conditions	Symbol	Units	Min.	Max.
Off Characteristics					
Collector - Emitter Breakdown Voltage	I_C = 100 mAdc, 2N3766 I_C = 100 mAdc, 2N3767	$V_{(BR)CEO}$	Vdc	60 80	—
Collector - Emitter Cutoff Current	V_{CE} = 60 Vdc, 2N3766 V_{CE} = 80 Vdc, 2N3767	I_{CEO}	µAdc	—	500 500
Collector - Emitter Cutoff Current	V_{CE} = 80 Vdc, V_{BE} = 1.5 Vdc, 2N3766 V_{CE} = 100 Vdc, V_{BE} = 1.5 Vdc, 2N3767	I_{CEX}	µAdc	—	10 10
Collector - Base Cutoff Current	V_{CB} = 80 Vdc, 2N3766 V_{CB} = 100 Vdc, 2N3767	I_{CBO}	µAdc	—	10 10
Emitter - Base Cutoff Current	V_{EB} = 6 Vdc	I_{EBO}	µAdc	—	500
On Characteristics[1]					
Forward Current Transfer Ratio	I_C = 50 mAdc, V_{CE} = 5 Vdc I_C = 500 mAdc, V_{CE} = 5 Vdc I_C = 1 Adc, V_{CE} = 10 Vdc	H_{FE}	-	30 40 20	— 160 —
Collector - Emitter Saturation Voltage	I_C = 1 Adc, I_B = 0.1 Adc I_C = 0.5 Adc, I_B = 0.5 Adc	$V_{CE(SAT)}$	Vdc	—	2.5 1.0
Emitter - Base Voltage	I_C = 1 Adc, V_{CE} = 10 Vdc	$V_{BE(ON)}$	Vdc	—	1.5
Dynamic Characteristics					
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio	I_C = 500 mAdc, V_{CE} = 10 Vdc, f = 10 mHz	$\lvert H_{FE} \rvert$	-	1	8
Output Capacitance	V_{CB} = 10 Vdc, I_E = 0, 0.1 MHz ≤ f ≤ 1 MHz	C_{OBO}	pF	—	50
Switching Characteristics					
Turn-On Time	V_{CC} = 30 Vdc; I_C = 0.5 Adc; I_B1 = 0.05 Adc	T_{ON}	µs	—	0.25
Turn-Off Time	V_{CC} = 30 Vdc; I_C = 0.5 Adc; I_B1 = -I_B2 = 0.05 Adc	T_{OFF}	µs	—	2.5
Safe Operating Area					
DC Tests: Test 1: Test 2: Test 3:	T_C = +25 °C, I Cycle, t = 1.0 s V_{CE} = 6.22 Vdc, I_C = 4 Adc V_{CE} = 20 Vdc, I_C = 1.25 Adc V_{CE} = 50 Vdc, I_C = 150 Adc, 2N3766 V_{CE} = 65 Vdc, I_C = 150 Adc, 2N3767				

1. Pulse Test: Pulse Width = 300 µs, Duty Cycle ≤2.0%.

NPN Power Silicon Transistor

Rev. V1

Absolute Maximum Ratings

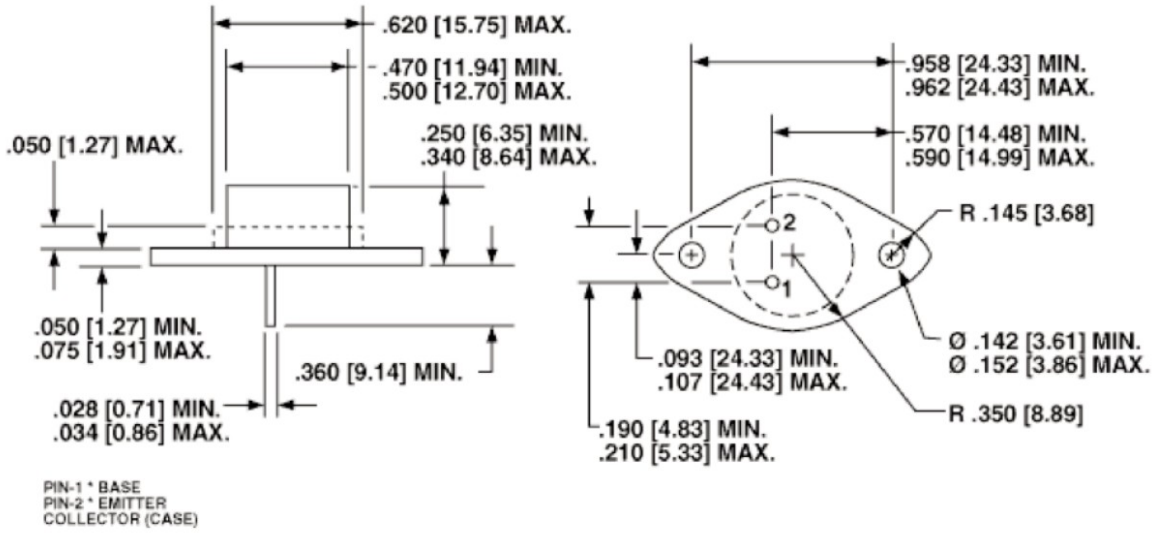
Ratings	Symbol	Value
Collector - Emitter Voltage 2N3766 2N3767	V_{CEO}	60 Vdc 80 Vdc
Collector - Base Voltage 2N3766 2N3767	V_{CBO}	80 Vdc 100 Vdc
Emitter - Base Voltage	V_{EBO}	6 Vdc
Base Current	I_B	2 Vdc
Collector Current	I_C	4 Adc
Total Power Dissipation @ TA = 25°C[1]	P_T	25 W
Operating & Storage Temperature Range	T_{OP}, T_{STG}	-65°C to +200°C

1. Derate linearly @ 143 mW / °C between T_C = 25°C and T_C = 200°C

Thermal Characteristics

Characteristics	Symbol	Max. Value
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.66°C/W

Outline Drawing



NOTE: Dimensions in Inches [mm]