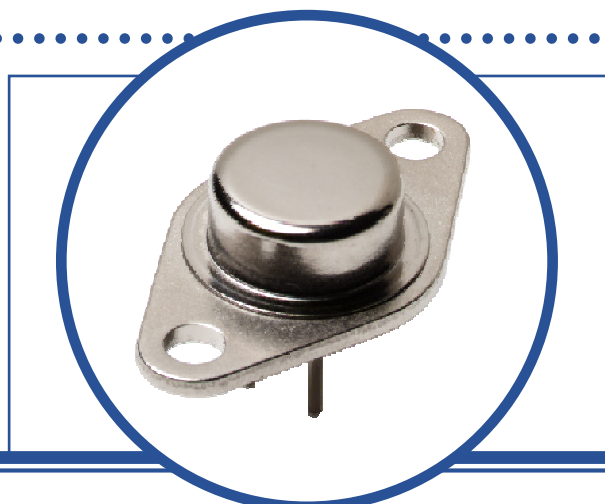


# SILICON NPN TRANSISTOR

## 2N3767

- Low Saturation Voltage
- High Gain Characteristics
- Hermetic TO66 Metal Package
- High Reliability Screening Options Available
- Switching and Medium Power Amplifier Applications



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

$V_{CBO}$	Collector – Base Voltage	100V
$V_{CEO}$	Collector – Emitter Voltage	80V
$V_{EBO}$	Emitter – Base Voltage	6.0V
$I_C$	Continuous Collector Current	4.0A
$I_B$	Base Current	2.0A
$P_T$	Total Power Dissipation at $T_C = 25^\circ\text{C}$ De-rate Above $T_C = 25^\circ\text{C}$	25W 143mW/ $^\circ\text{C}$
$T_J$	Junction Temperature Range	-65 to +200 $^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-65 to +200 $^\circ\text{C}$

### THERMAL PROPERTIES

Symbols	Parameters	Min.	Typ.	Max.	Unit
$R_{\theta JC}$	Thermal Resistance, Junction To Case			7.0	$^\circ\text{C/W}$

Semelab Limited reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.



# SILICON NPN TRANSISTOR

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### ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ.	Max.	Unit
$V_{(BR)CEO}^{(1)}$	Collector-Emitter Breakdown Voltage	$I_C = 100\text{mA}$ $I_B = 0$	80			V
$I_{CEO}$	Collector-Emitter Cut off Current	$V_{CE} = 80\text{V}$			500	$\mu\text{A}$
$I_{EBO}$	Emitter-Base Cut-Off Current	$V_{EB} = 6.0\text{V}$ $I_C = 0$			500	
$I_{CEX}$	Collector-Emitter Cut-Off Current	$V_{CE} = 100\text{V}$ $V_{BE} = -1.5\text{V}$			10	mA
		$V_{CE} = 70\text{V}$ $V_{BE} = -1.5\text{V}$ $T_A = 150^\circ\text{C}$			1.0	
$I_{CBO}$	Collector-Base Cut-Off Current	$V_{CB} = 100\text{V}$ $I_E = 0$			10	$\mu\text{A}$
$V_{BE}^{(1)}$	Base-Emitter Voltage	$V_{CE} = 10\text{V}$ $I_C = 1.0\text{A}$			1.5	V
$h_{FE}^{(1)}$	DC Current Gain	$I_C = 50\text{mA}$ $V_{CE} = 5\text{V}$	30			
		$I_C = 500\text{mA}$ $V_{CE} = 5\text{V}$ $T_A = -55^\circ\text{C}$	40		160	
		$I_C = 1.0\text{A}$ $V_{CE} = 10\text{V}$	20			
$V_{CE(sat)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = 500\text{mA}$ $I_B = 50\text{mA}$			1.0	V
		$I_C = 1.0\text{A}$ $I_B = 100\text{mA}$			2.5	
$V_{BE(sat)}^{(1)}$	Base-Emitter Saturation Voltage	$I_C = 1.0\text{A}$ $I_B = 100\text{mA}$			1.5	

### DYNAMIC CHARACTERISTICS

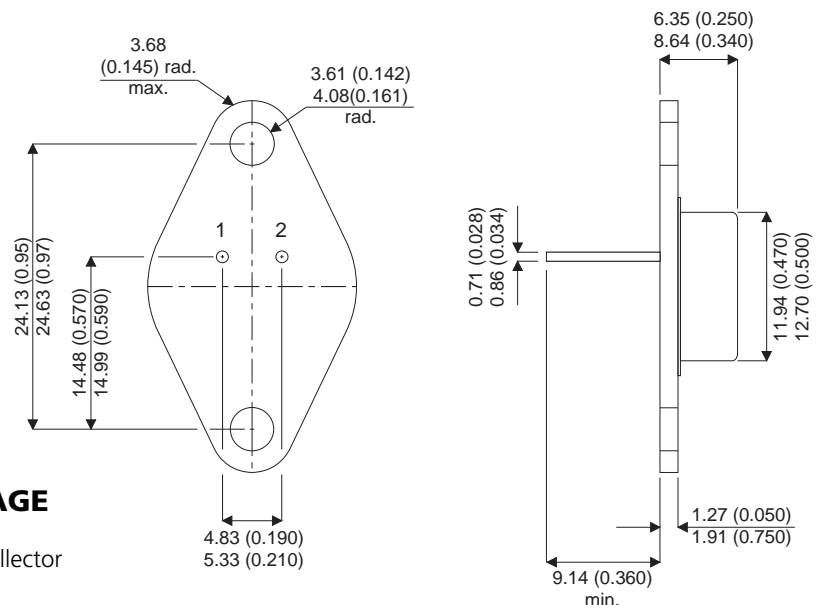
$ h_{fe} $	Magnitude of Small-Signal Short-Circuit Current Gain	$I_C = 500\text{mA}$ $V_{CE} = 10\text{V}$ $f = 10\text{MHz}$	1.0		8.0	
$C_{obo}$	Output Capacitance	$V_{CB} = 10\text{V}$ $I_E = 0$ $f = 1.0\text{MHz}$			50	pF
$t_{on}$	Turn On Time	$V_{CC} = 30\text{V}$ $I_C = 500\text{mA}$			0.25	$\mu\text{s}$
$t_{off}$	Turn Off Time	$I_{B1} = 50\text{mA}$ $I_{B2} = -I_{B1}$			2.5	

#### Notes

(1) Pulse Width  $\leq 300\mu\text{s}$ ,  $\delta \leq 2\%$

### MECHANICAL DATA

Dimensions in mm (inches)



### TO66 (TO-213AA) METAL PACKAGE

Underside View

PIN 1 - Base PIN 2 - Emitter Case - Collector