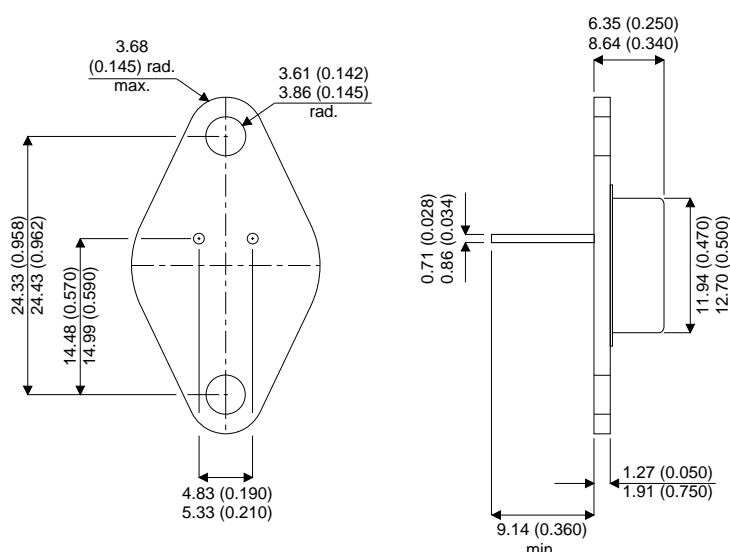


MECHANICAL DATA

Dimensions in mm

**NPN TRANSISTOR
MEDIUM POWER
HIGH VOLTAGE**



APPLICATIONS

Designed for switching regulator applications where high frequency and high voltage swings are required.

TO66 Package.

ABSOLUTE MAXIMUM RATINGS ($T_{case} = -25^{\circ}C$ unless otherwise stated)

V_{CEO}	Collector – Emitter Voltage	300V
V_{CB}	Collector – Base Voltage	500V
V_{EB}	Emitter – Base Voltage	6V
I_C	Collector Current	Continuous
I_C	Peak (1)	2A
I_B	Base Current	5A
P_D	Total Power Dissipation	1A
	Derate above 25 °C	35W
T_J, T_{stg}	Operating and Storage Junction Temperature Range	0.2W / °C
$R_{\theta JC}$	Thermal Resistance , Junction To Case	-65 to 200 °C
		5.0°C / W

NOTES:

(1) Pulse Test: Pulse Width = 5.0 ms , Duty Cycle \leq 10%.

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$, unless otherwise stated)

OFF CHARACTERISTICS

Parameter	Test Conditions	Min.	Typ.	Max.	Unit.
$V_{CEO(sus)}$	Collector – Emitter Sustaining Voltage $I_C = 200mA, I_B = 0$	300			V
I_{CEO}	Collector Cutoff Current $V_{CE} = 150V, I_B = 0$			5.0	mA
I_{CEX}	Collector Cutoff Current $V_{CE} = 450V, V_{BE(off)} = 1.5V$			2.0	mA
	$V_{CE} = 450V, V_{BE(off)} = 1.5V, T_C = 150^{\circ}C$			5.0	
I_{EBO}	Emitter Cutoff Current $V_{BE} = 6V, I_C = 0$			0.5	mA

ON CHARACTERISTICS (1)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit.
h_{FE}	Current Gain $I_C = 0.1A, V_{CE} = 10V$	40			—
	$I_C = 0.75A, V_{CE} = 2V$	10		100	
	$I_C = 0.75A, V_{CE} = 10V$	30		150	
$V_{CE(sat)}$	Collector – Emitter Saturation Voltage $I_C = 0.75A, I_B = 75mA$			1.0	V
$V_{BE(sat)}$	Base – Emitter Saturation Voltage $I_C = 0.75A, I_B = 75mA$			1.8	V
$V_{BE(on)}$	Base – Emitter On Voltage $I_C = 0.1A, V_{CE} = 10V$			1.4	V
$I_{s/b}$	Second Breakdown Collector Current ($V_{CC} = 100V$)	350			mA

DYNAMIC CHARACTERISTICS

Parameter	Test Conditions	Min.	Typ.	Max.	Unit.
f_T	Current Gain – Bandwidth Product (2) $I_C = 200mA, V_{CE} = 10V$ $f_{test} = 5.0MHz$	15			MHz
C_{ob}	Output Capacitance $V_{CB} = 10V, I_E = 0, f = 1.0MHz$			120	pF

SWITCHING CHARACTERISTICS

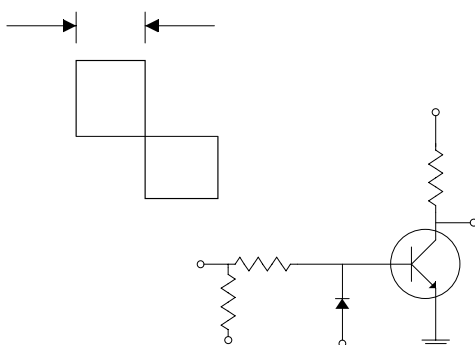
Parameter	Test Conditions	Min.	Typ.	Max.	Unit.
t_r	Rise Time $V_{CC} = 200V, I_C = 0.75A$ $R_L = 200\Omega, I_{B1} = 100mA$			0.5	μS
t_s	Storage Time $V_{CC} = 200V, I_C = 0.75A$ $I_{B1} = I_{B2} = 75mA$			6.0	μS
t_f	Fall Time $V_{CC} = 200V, I_C = 0.75A$ $I_{B1} = I_{B2} = 75mA$			3.0	μS

NOTES:

(1) Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2\%$

(2) $f_T = |h_{fe}| \cdot f_{test}$

FIGURE 1 – SWITCHING TIME TEST CIRCUIT



R_B AND R_C varied to obtain desired current levels.

D_1 must be fast recovery type.

For t_d and t_r , D_1 is disconnected and $V_2 = 0$.