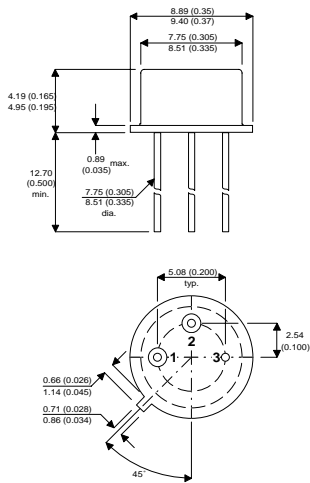


MECHANICAL DATA

Dimensions in mm(inches)

NPN SILICON TRANSISTOR



TO39

Pin 1 = Emitter Pin 2 = Base Pin 3 = Collector

FEATURES

- FAST SWITCHING
- HIGH PULSE POWER

APPLICATIONS

- POWER SWITCHING CIRCUITS
- MOTOR CONTROL

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

V_{CBO}	Collector – Base Voltage	300V
V_{CEX}	Collector – Emitter Voltage ($V_{BE} = -1.5V$)	300V
V_{CEO}	Collector – Emitter Voltage	200V
V_{ER}	Collector – Emitter Voltage $R_{BE} = 100\Omega$	260V
V_{EBO}	Emitter – Base Voltage	7V
I_C	Collector Current	3.5A
I_{CM}	Peak Collector Current ($t_p = 10\text{ ms}$)	5A
I_B	Base Current	0.7A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25^{\circ}C$	10W
T_{stg}	Storage Temperature	200°C
T_j	Junction Temperature	-65°C to +200°C

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{CEO(sus)}$ Collector - Emitter Sustaining Voltage	$I_C = 200mA$ $L = 25mH$ $I_B = 0.5A$	200			V
$V_{(BR)EBO}$ Emitter – Base Breakdown Voltage	$I_C = 0$ $I_E = 5mA$	7			V
I_{CEO} Collector Emitter Cut-off Current	$V_{CE} = 160V$ $I_B = 0$			0.5	mA
I_{CEX} Collector Emitter Cut-off Current	$V_{CE} = 250V$ $V_{BE} = -1.5V$ $T_C = 125^{\circ}C$			0.1 0.5	mA
I_{EBO} Emitter–Base Cut-off Current	$I_C = 0$ $V_{EB} = 5V$			0.5	mA
$V_{CE(sat)*}$ Collector – Emitter Saturation Voltage	$I_C = 1A$ $I_C = A$ $I_B = 0.1A$ $I_B = 0.2A$		0.15 0.3	0.5 1	V
$V_{BE(sat)*}$ Base – Emitter Saturation Voltage	$I_C = 2A$ $I_B = 0.2A$		0.9	1.3	V
$I_{S/b}$ Second Breakdown Collector Current	$V_{CE} = 40V$ $t = 1s$	0.25			A
f_t Transition Frequency	$I_C = 0.5A$ $f = 10MHz$ $V_{CE} = 10V$	8			MHz
$t_d + t_r$ Turn–On Time	$I_C = 2A$ $I_B = 0.2A$		0.45	0.8	μs
t_f Fall Time	$I_C = 2A$ $I_{B2} = 0.2A$ $I_{B1} = 0.2A$		0.2	0.5	
Carrier Storage Time	$I_C = 2A$ $I_{B2} = 0.2A$ $I_{B1} = 0.2A$		1.2	2.5	

*Pulsed $t_p = 300\mu s @ < 1\%$

THERMAL CHARACTERISTICS

$R_{\theta JC}$ Junction to Case Thermal Resistance			17.5	$^{\circ}C/W$
$R_{\theta JA}$ Junction to Ambient Thermal Resistance			175	$^{\circ}C/W$