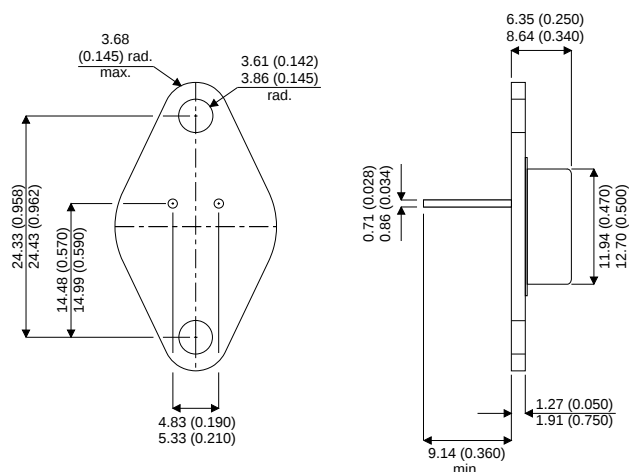


MECHANICAL DATA

Dimensions in mm

MEDIUM POWER NPN SILICON TRANSISTOR



Designed for switching and
wide - band amplifier
applications

TO66 Package.

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

V_{CEO}	Collector - emitter voltage	80 V
V_{CB}	Collector - base voltage	80 V
V_{EB}	Emitter - base voltage	6 V
I_C	Collector current – continuous	7 A
I_B	Base current	1 A
P_D	Total device dissipation at $T_{case} = 25^{\circ}C$	40 W
	Derate above $25^{\circ}C$	228 mW / $^{\circ}C$
T_j	Operating and	-65 to $200^{\circ}C$
T_{stj}	storage junction temperature range	
$R_{\theta JC}$	Thermal resistance, junction to case.	4.37 $^{\circ}C / W$

OFF CHARACTERISTICS

Parameter	Test Conditions	Min	Max	Unit
$BV_{CEO(sus)}$ Collector - Emitter sustaining voltage	$I_C = 50mA, I_B = 0$	80	-	V
I_{CBO} Collector cutoff current	$V_{CE} = 75V, I_B = 0$	-	100	μA
I_{CEX} Collector cutoff current	$V_{CE} = 75V, V_{EB(off)} = 1.5V$	-	10	μA
	$V_{CE} = 75V, V_{EB(off)} = 1.5V, T_C = 150^\circ C$	-	1.0	mA
I_{CBO} Collector cutoff current	$V_{CB} = \text{Rated } V_{CB}, I_E = 0$		10	μA
I_{EBO} Emitter cutoff current	$V_{BE} = 6V, I_C = 0$		100	μA

ON CHARACTERISTICS

Parameter	Test Conditions	Min	Max	Unit
h_{FE} DC Current gain (1)	$I_C = 500mA, V_{CE} = 2V$	60	-	—
	$I_C = 2A, V_{CE} = 2V$	30	120	
	$I_C = 5A, V_{CE} = 2V$	30		
$V_{CE(sat)}$ Collector - Emitter saturation voltage	$I_C = 2A, I_B = 0.2A$		0.7	V
	$I_C = 7A, I_B = 0.7A$		1.2	
$V_{BE(sat)}$ Base - Emitter saturation voltage	$I_C = 2A, I_B = 0.2A$		1.2	V
	$I_C = 7A, I_B = 0.7A$		2.0	

DYNAMIC CHARACTERISTICS

Parameter	Test Conditions	Min	Max	Unit
f_T Current gain bandwidth product	$(I_C = 500\text{ mA}, V_{CE} = 10V, f = 10\text{ MHz})$	30	-	MHz
C_{ob} Output capacitance	$(V_{CB} = 10V, I_E = 0, f = 100\text{ kHz})$	-	250	pF
C_{ib} Input capacitance	$(V_{BE} = 2V, I_C = 0, f = 100\text{ kHz})$	-	1000	pF

SWITCHING CHARACTERISTICS

Parameter	Test Conditions	Min	Max	Unit
t_d Delay time	$(V_{CC} = 40V, V_{EB(off)} = 3V)$	-	100	ns
t_r Rise time	$I_C = 2A, I_{B1} = 200mA)$	-	100	ns
t_s Storage time	$(V_{CC} = 40V, I_C = 2A)$	-	2.0	μs
t_f Fall time	$I_{B1} = I_{B2} = 200mA)$	-	200	ns

(1) Pulse Test: Pulse width = 300 μs , Duty Cycle = 2.0 %