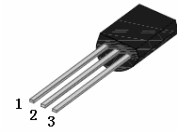


13003

NPN Silicon Transistor
High Voltage Switch Mode Application

DRAWING



1. Base 2. Collector 3. Emitter

Features

- High Voltage Capability
- High Speed Switching
- Suitable for Switching Regulator and Motor Control
- Case:TO-92

Absolute Maximum Ratings (Ta=25°C unless otherwise noted)

Symbol	Parameter	Value	Units
V _{CB0}	Collector-Base Voltage	700	V
V _{CEO}	Collector-Emitter Voltage	400	V
V _{EBO}	Emitter-Base Voltage	9	V
I _C	Collector Current(DC)	1	A
I _{CP}	Collector Current(Pulse)	2	A
I _B	Base Current	4	A
P _C	Collector Dissipation(Ta=25°C)	1.25	W
T _J	Junction Temperature	150	°C
T _{STG}	Storage Temperature	-65~150	°C

Electrical Characteristics (Tc=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
BV _{CEO}	Collector-Emitter Breakdown Voltage	I _C =1mA, I _B =0	400			V
I _{EBO}	Emitter Cut-off Current	V _{EB} =9V, I _C =0			1	mA
H _{fe1}	DC Current Gain	V _{CE} =5V, I _C =1mA	6		50	
H _{fe2}		V _{CE} =5V, I _C =0.2A	8		50	
V _{CE(sat)}	Collector-Emitter Saturation Voltage	I _C =0.5A, I _B =0.1A			0.45	V
		I _C =1A, I _B =0.25A			0.95	V
		I _C =2A, I _B =1.00A			0.95	V
		I _C =1.5A, I _B =0.5A			0.95	V
V _{BE(sat)}	Base-Emitter Saturation Voltage	I _C =0.5A, I _B =0.1A			0.95	V
		I _C =2A, I _B =1.0A			1.20	V
F _t	Current Gain Bandwidth Product	V _{CE} =10V, I _C =0.5A	4			MHz
C _{ob}	Output Capacitance	V _{CB} =10V, F=0.1MHz		110		PF
T _{on}	Turn On time	V _{CC} =125V, I _C =5A I _{B1} =-I _{B2} =1A R _L =50Ω,			1.6	us
T _{STG}	Storage Time				3	us
T _F	Fall Time				0.7	us

Pulse Test:PW≤300us,Duty Cycle≤2%

Thermal Performance Characteristics

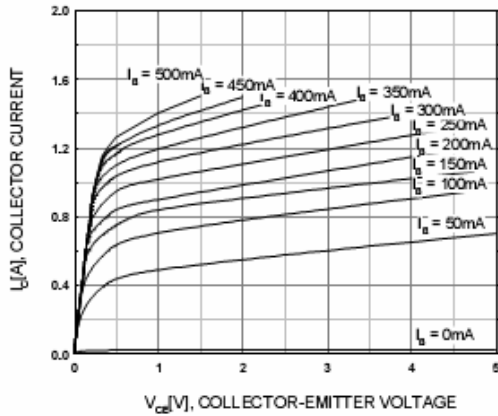


Figure 1. Static Characteristic

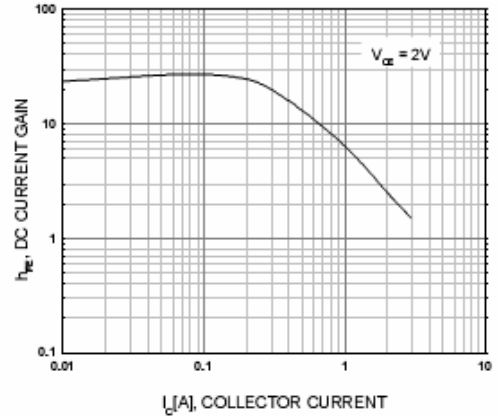


Figure 2. DC current Gain

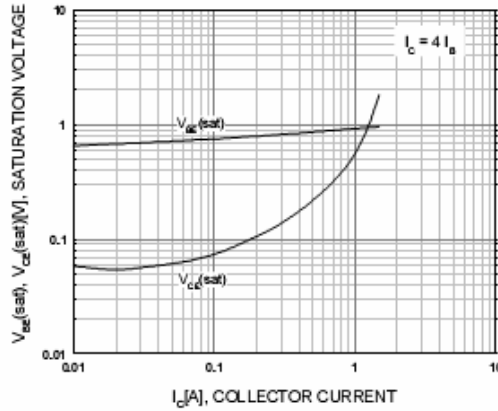


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

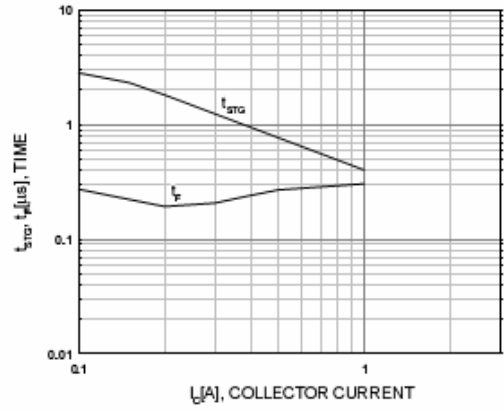


Figure 4. Switching Time

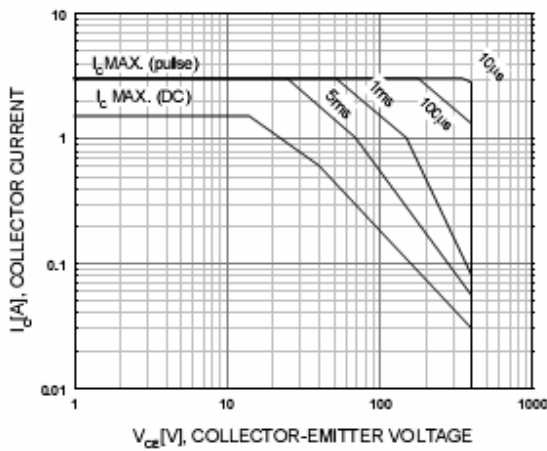


Figure 5. Safe Operating Area

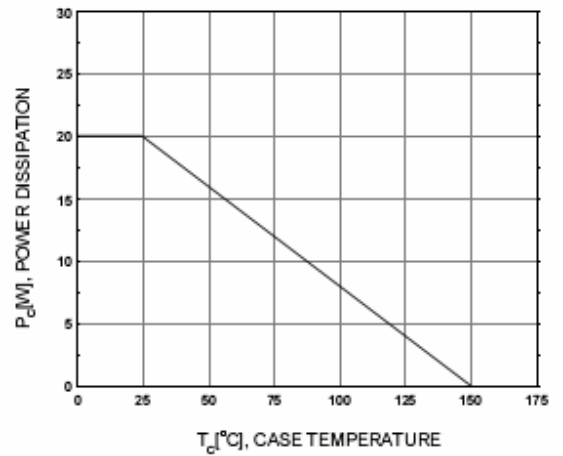
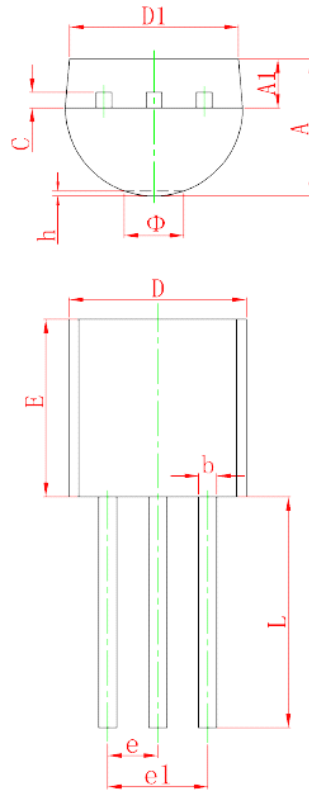


Figure 6. Power Derating

Mechanical Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.400	4.700	0.173	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270 TYP		0.050 TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Φ		1.600		0.063
h	0.000	0.380	0.000	0.015