

2SC4138

Silicon NPN Triple Diffused Planar Transistor (High Voltage and High Speed Switching Transistor)

Application : Switching Regulator and General Purpose

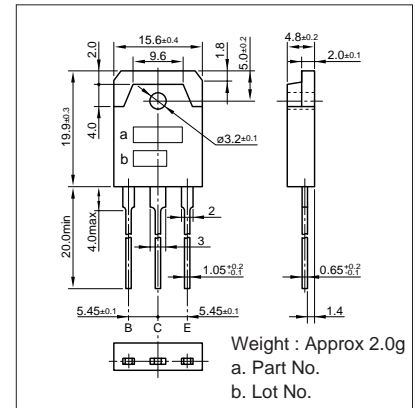
Absolute maximum ratings (Ta=25°C)

Symbol	Ratings	Unit
V _{CB0}	500	V
V _{CE0}	400	V
V _{EB0}	10	V
I _C	10(Pulse20)	A
I _B	4	A
P _C	80(T _C =25°C)	W
T _J	150	°C
T _{stg}	-55 to +150	°C

Electrical Characteristics (Ta=25°C)

Symbol	Conditions	Ratings	Unit
I _{CB0}	V _{CB} =500V	100max	μA
I _{EB0}	V _{EB} =10V	100max	μA
V _{(BR)CEO}	I _C =25mA	400min	V
h _{FE}	V _{CE} =4V, I _C =6A	10 to 30	
V _{CE(sat)}	I _C =6A, I _B =1.2A	0.5max	V
V _{BE(sat)}	I _C =6A, I _B =1.2A	1.3max	V
f _T	V _{CE} =12V, I _E =-0.7A	10typ	MHz
COB	V _{CB} =10V, f=1MHz	85typ	pF

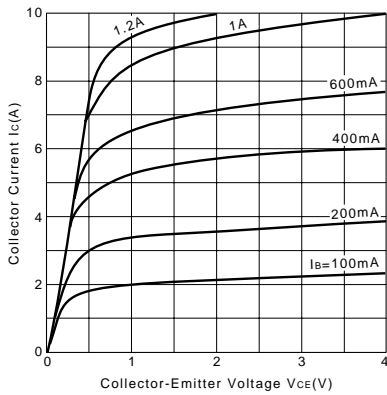
External Dimensions MT-100(TO3P)



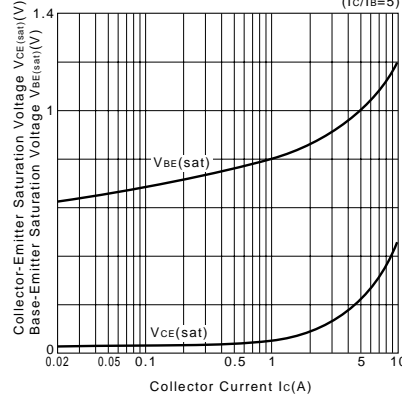
Typical Switching Characteristics (Common Emitter)

V _{CC} (V)	R _L (Ω)	I _C (A)	V _{BB1} (V)	V _{BB2} (V)	I _{B1} (A)	I _{B2} (A)	t _{on} (μs)	t _{stg} (μs)	t _f (μs)
200	33.3	6	10	-5	0.6	-1.2	1max	3max	0.5max

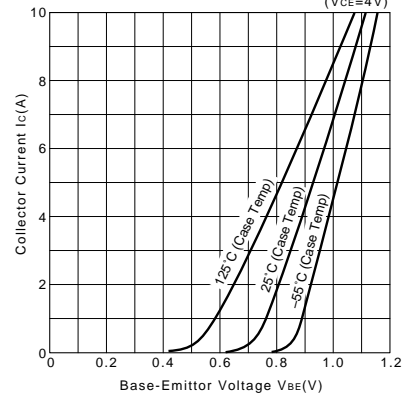
I_C-V_{CE} Characteristics (Typical)



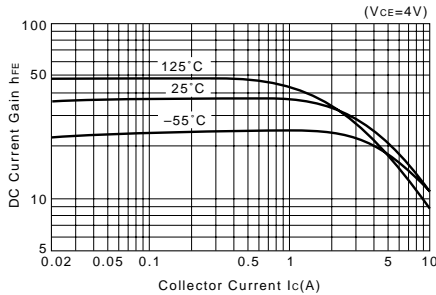
V_{CE(sat)}, V_{BE(sat)}-I_C Temperature Characteristics (Typical)



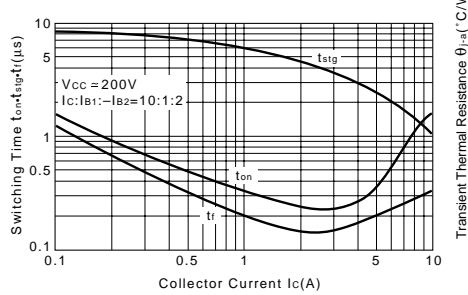
I_C-V_{BE} Temperature Characteristics (Typical)



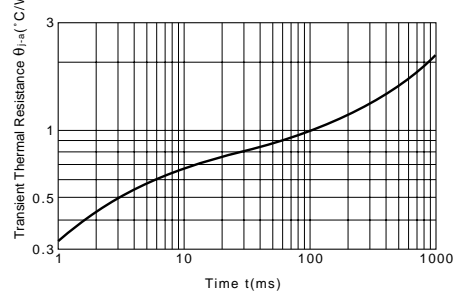
h_{FE}-I_C Characteristics (Typical)



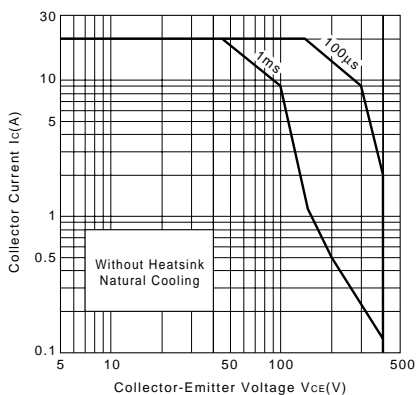
t_{on}*t_{stg}*t_f-I_C Characteristics (Typical)



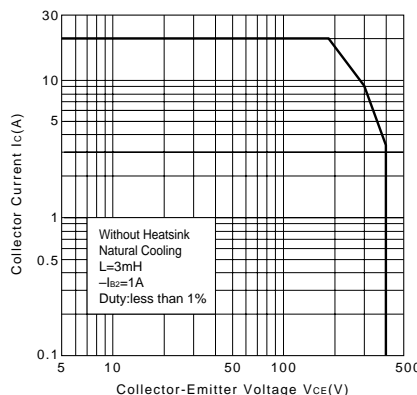
θ_{j-a}-t Characteristics



Safe Operating Area (Single Pulse)



Reverse Bias Safe Operating Area



P_C-T_a Derating

