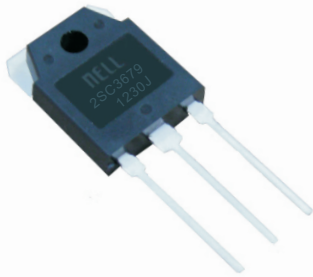


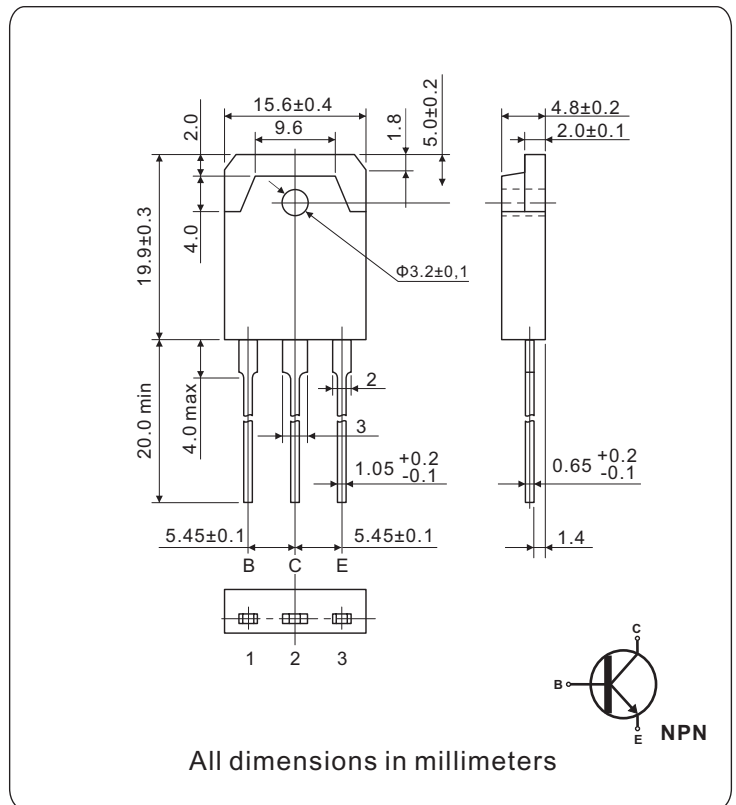
Silicon NPN triple diffusion planar transistor (High voltage switching transistor) 5A/800V/100W


TO-3P(B)
FEATURES

- High-speed switching
- High collector to base voltage V_{CBO}
- Satisfactory linearity of forward current transfer ratio h_{FE}
- TO-3P package which can be installed to the heat sink with one screw

APPLICATIONS

- Switching regulator and general purpose


ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

SYMBOL	PARAMETER	VALUE	UNIT	
V_{CBO}	Collector to base voltage	900	V	
V_{CEO}	Collector to emitter voltage	800		
V_{EBO}	Emitter to base voltage	7		
I_{CP}	Peak collector current	10	A	
I_C	Collector current	5		
I_B	Base current	2.5		
P_C	Collector power dissipation	$T_C = 25^\circ\text{C}$	100	W
		$T_a = 25^\circ\text{C}$	3.5	
T_j	Junction temperature	150	$^\circ\text{C}$	
T_{stg}	Storage temperature	-55 to 150		

THERMAL RESISTANCE ($T_a=25^\circ\text{C}$)

SYMBOL	PARAMETER	Min	Typ	Max	UNIT
$R_{th(j-c)}$	Thermal resistance, junction to ambient			2.0	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS (T _a = 25°C)						
SYMBOL	PARAMETER	CONDITIONS	Min	Typ	Max	UNIT
I _{CB0}	Collector cutoff current	V _{CB} = 800V, I _E = 0			100	μA
I _{EBO}	Emitter cutoff current	V _{EB} = 7V, I _C = 0			100	
V _{(BR)CEO}	Collector to emitter breakdown voltage	I _C = 10mA	800			V
V _{CEO(sus)} *	Collector to emitter saturation voltage	I _C = 0.5A, L = 50mH	800			V
h _{FE}	Forward current transfer ratio	V _{CE} = 4V, I _C = 2A	10		30	
V _{CE(sat)}	Collector to emitter saturation voltage	I _C = 2A, I _B = 0.4A			0.5	V
V _{BE(sat)}	Base to emitter saturation voltage	I _C = 2A, I _B = 0.4A			1.2	
f _T	Transition frequency (Current gain - Bandwidth product)	V _{CE} = 12V, I _E = -0.5A		6		MHz
C _{ob}	Output capacitance	V _{CB} = 10V, f = 1MHz		75		pF
t _{on}	Turn-on time	I _C = 2A, I _{B1} = 0.3A, I _{B2} = -1.0A V _{CC} = 250V, R _L = 125Ω			1	μs
t _{stg}	Storage time				5	
t _f	Fall time				1	

*V_{CEO(sus)} Test circuit

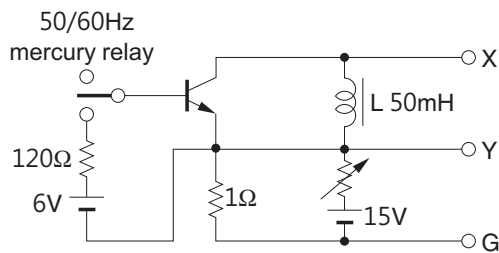


Fig.1 I_C-V_{CE} Characteristics (Typical)

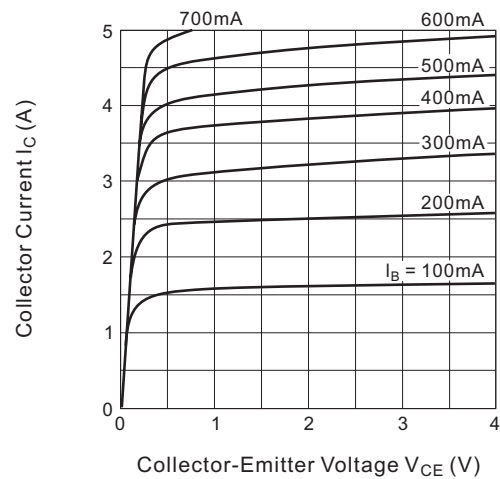


Fig.2 V_{CE(sat)}, V_{BE(sat)} - I_C Temperature Characteristics (Typical)

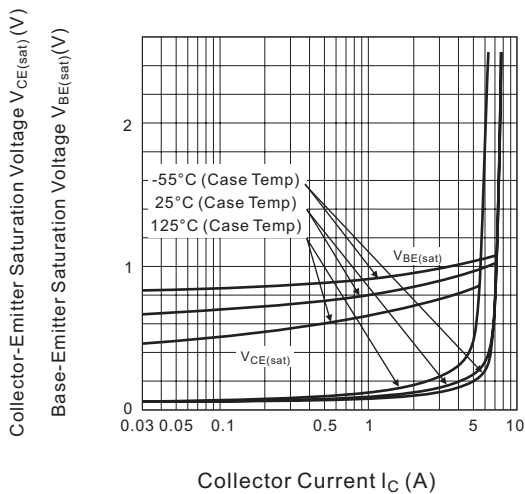


Fig.3 I_C-V_{BE} Temperature Characteristics (Typical)

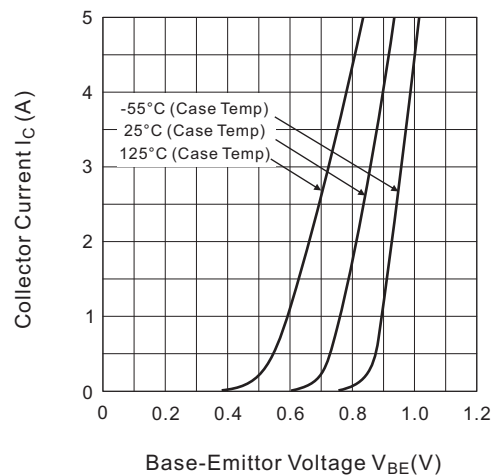


Fig.4 h_{FE} - I_C Characteristics (Typical)

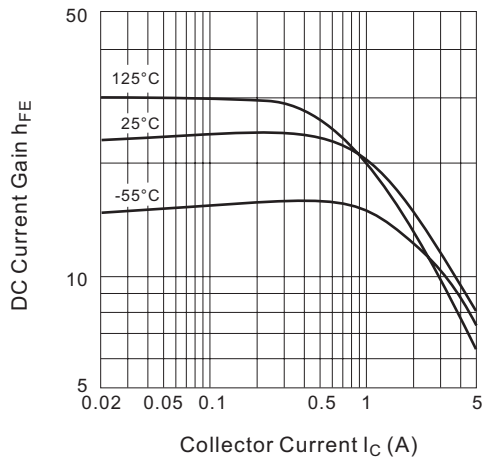


Fig.5 Switching time - I_C Characteristics (Typical)

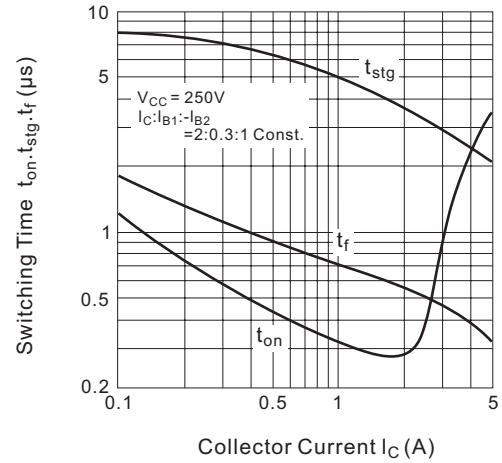


Fig.6 Thermal resistance

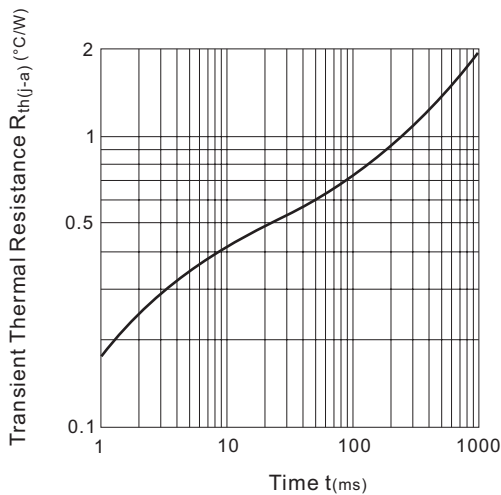


Fig.7 Safe Operating Area (Single Pulse)

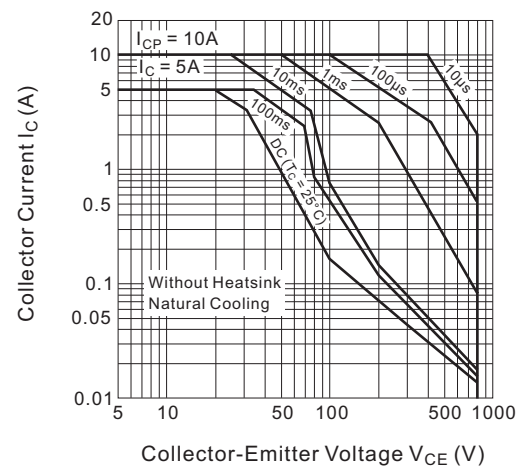


Fig.8 Reverse Bias Safe Operating Area

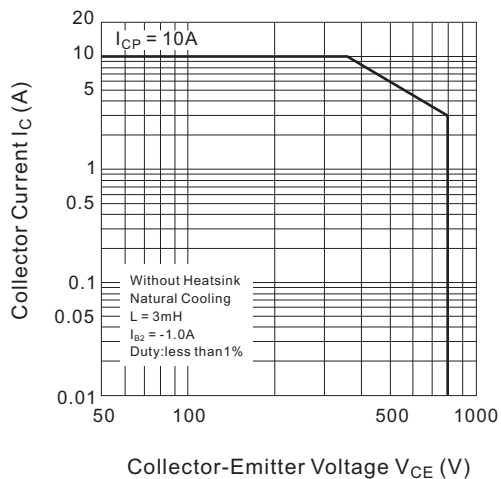


Fig.9 P_C - T_a Derating

