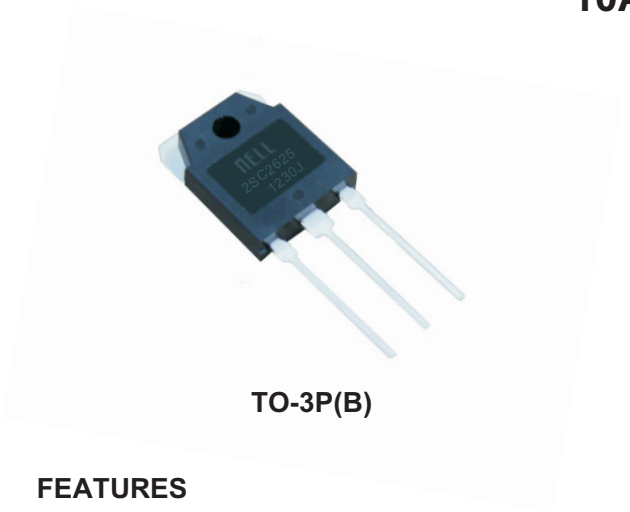
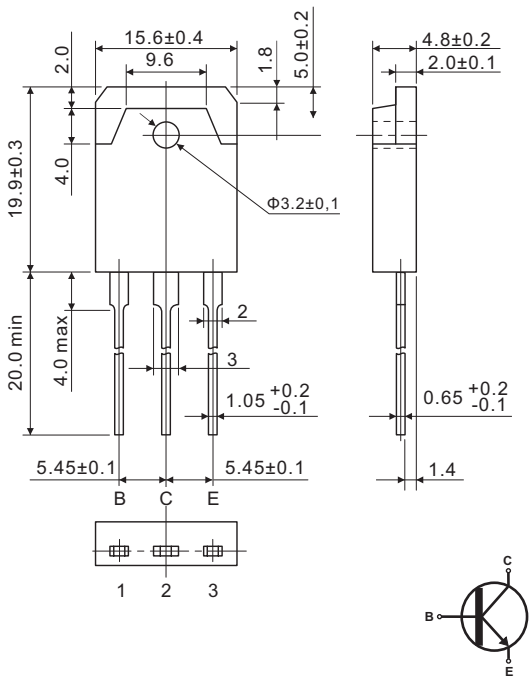
Silicon NPN triple diffusion planar transistor
(High voltage switching transistor)
10A/400V/80W



TO-3P(B)



All dimensions in millimeters

FEATURES

- High-speed switching
- High collector to base voltage V_{CBO}
- Satisfactory linearity of foward 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
- Ultrasonic generators
- High frequency inverters

ABSOLUTE MAXIMUM RATINGS (T_C = 25°C)

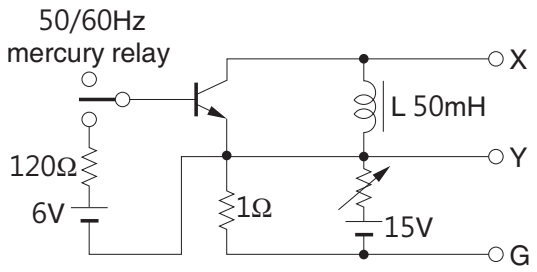
SYMBOL	PARAMETER		VALUE	UNIT
V_{CBO}	Collector to base voltage		450	V
V_{CEO}	Collector to emitter voltage		400	
$V_{CEO(SUS)}$			400	
V_{EBO}	Emitter to base voltage		7	
I_C	Collector current		10	A
I_B	Base current		3	
P_C	Collector power dissipation	T_C= 25°C	80	W
T_j	Junction temperature		150	°C
T_{stg}	Storage temperature		-55 to 150	

THERMAL CHARACTERISTICS (T_C = 25°C)

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th(j-c)}$	Thermal resistance, junction to case	1.55	°C/W

ELECTRICAL CHARACTERISTICS (T_C = 25°C)					
SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
I_{CBO}	Collector cutoff current	V_{CBO} = 450V, I_E = 0		1.0	mA
I_{EBO}	Emitter cutoff current	V_{EBO} = 7V, I_C = 0		0.1	
V_{CEO}	Collector to emitter voltage	I_{CEO} = 10mA	400		V
$V_{CEO(SUS)}$*		I_C = 1A, L = 50mH			
V_{CBO}	Collector to base voltage	I_{CBO} = 1mA	450		
V_{EBO}	Emitter to base voltage	I_{EBO} = 0.1mA	7		
h_{FE}	Forward current transfer ratio (DC current gain)	V_{CE} = 5V, I_C = 4A	10		
$V_{CE(sat)}$	Collector to emitter saturation voltage	I_C = 4A, I_B = 0.8A		1.2	V
$V_{BE(sat)}$	Base to emitter saturation voltage	I_C = 4A, I_B = 0.8A		1.5	
t_{on}	Turn-on time	I_C = 7.5A, I_{B1} = 1.5A, I_{B2} = -1.5A R_L = 20Ω, P_W = 20μs, Duty ≤ 2%		1.0	μS
t_{stg}	Storage time			2.0	
t_f	Fall time			1.0	

*$V_{CEO(sus)}$ Test circuit



- Switching time test circuit

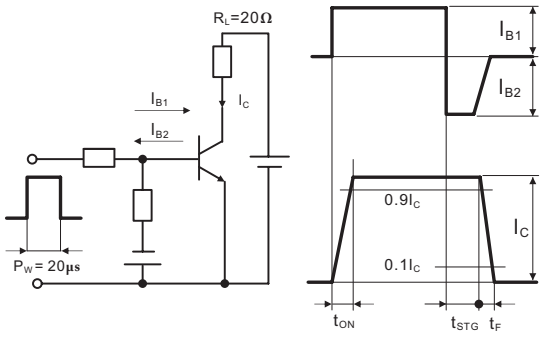


Fig.1 Collector output characteristics

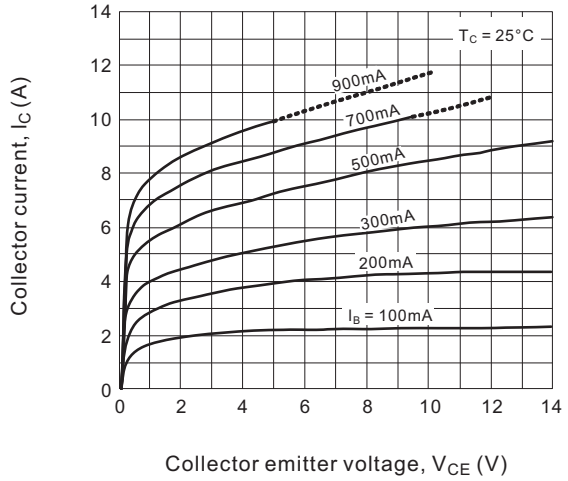


Fig.2 Base and collector saturation voltage

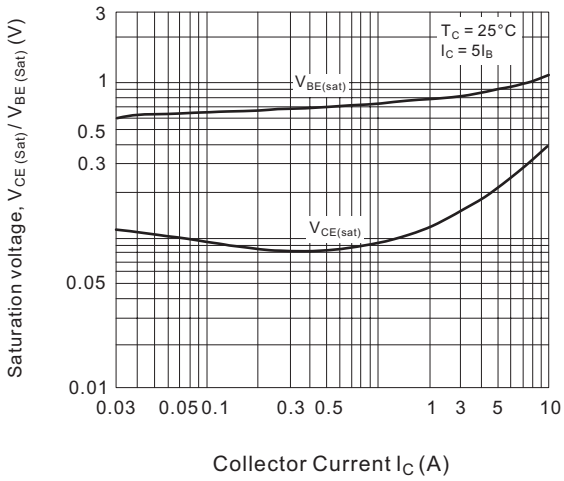


Fig.3 Switching time

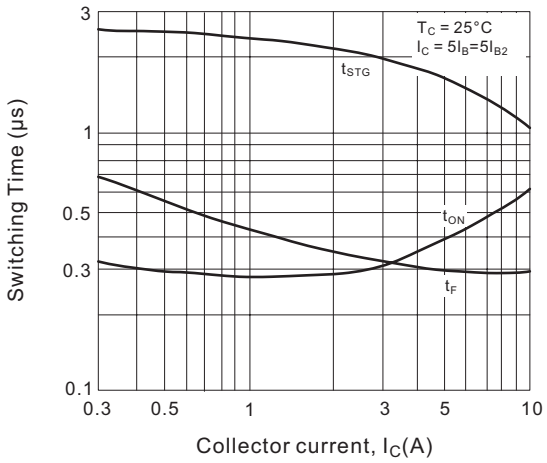


Fig.4 DC Current gain

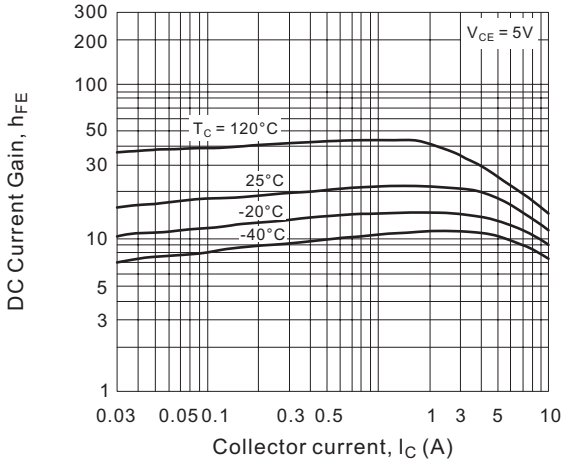


Fig.5 Safe operating area