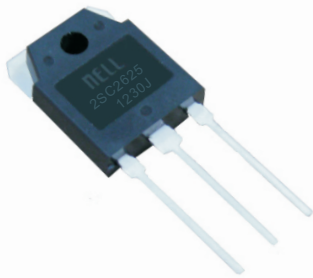


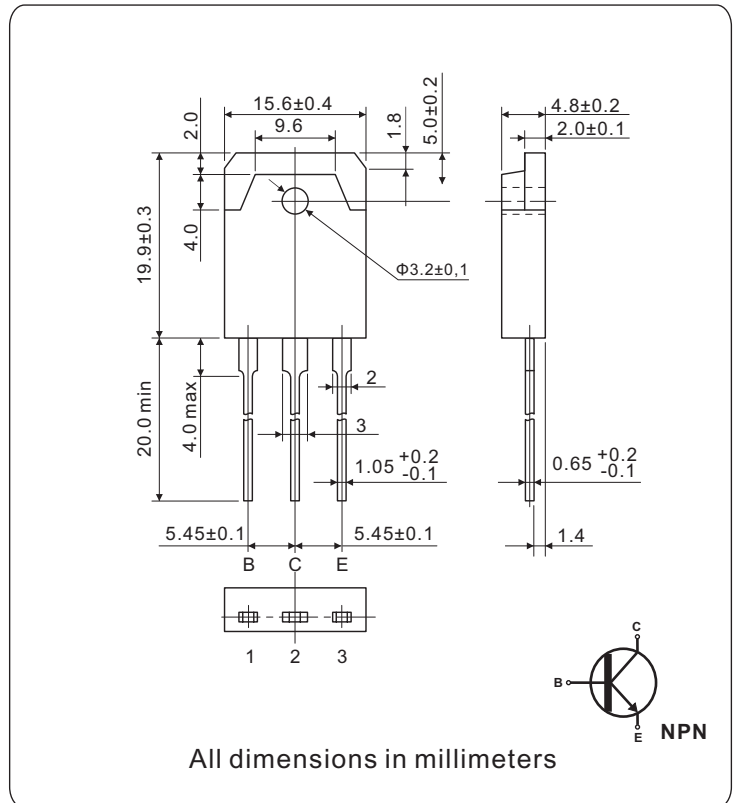
**Silicon NPN triple diffusion planar transistor  
(High voltage switching transistor)  
10A/400V/80W**


**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
- Ultrasonic generators
- High frequency inverters


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

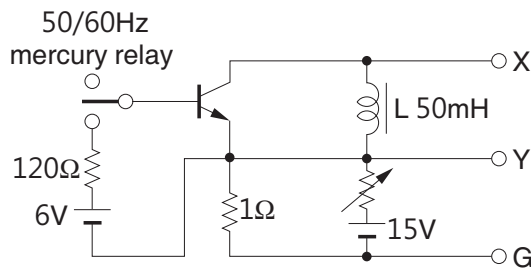
SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector to base voltage	450	V
$V_{CEO}$	Collector to emitter voltage	400	
$V_{CEO(SUS)}$		400	
$V_{EBO}$	Emitter to base voltage	7	
$I_C$	Collector current	10	A
$I_B$	Base current	3	
$P_C$	Collector power dissipation	$T_C = 25^\circ\text{C}$ 80	W
$T_j$	Junction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

**THERMAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ )**

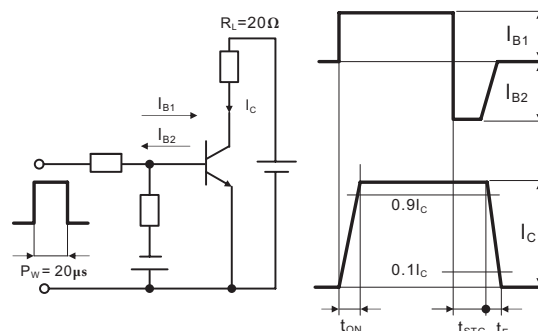
SYMBOL	PARAMETER	VALUE	UNIT
$R_{th(j-c)}$	Thermal resistance, junction to case	1.55	$^\circ\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS (T <sub>C</sub> = 25°C)					
SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
I <sub>CBO</sub>	Collector cutoff current	V <sub>CB0</sub> = 450V, I <sub>E</sub> = 0		1.0	mA
I <sub>EBO</sub>	Emitter cutoff current	V <sub>EBO</sub> = 7V, I <sub>C</sub> = 0		0.1	
V <sub>CEO</sub>	Collector to emitter voltage	I <sub>CEO</sub> = 10mA	400		V
V <sub>CEO(SUS)</sub> *		I <sub>C</sub> = 1A, L = 50mH			
V <sub>CB0</sub>	Collector to base voltage	I <sub>CBO</sub> = 1mA	450		
V <sub>EBO</sub>	Emitter to base voltage	I <sub>EBO</sub> = 0.1mA	7		
h <sub>FE</sub>	Forward current transfer ratio (DC current gain)	V <sub>CE</sub> = 5V, I <sub>C</sub> = 4A	10		
V <sub>CE(sat)</sub>	Collector to emitter saturation voltage	I <sub>C</sub> = 4A, I <sub>B</sub> = 0.8A		1.2	V
V <sub>BE(sat)</sub>	Base to emitter saturation voltage	I <sub>C</sub> = 4A, I <sub>B</sub> = 0.8A		1.5	
t <sub>on</sub>	Turn-on time	I <sub>C</sub> = 7.5A, I <sub>B1</sub> = 1.5A, I <sub>B2</sub> = -1.5A R <sub>L</sub> = 20Ω, P <sub>W</sub> = 20μs, Duty ≤ 2%		1.0	μS
t <sub>stg</sub>	Storage time			2.0	
t <sub>f</sub>	Fall time			1.0	

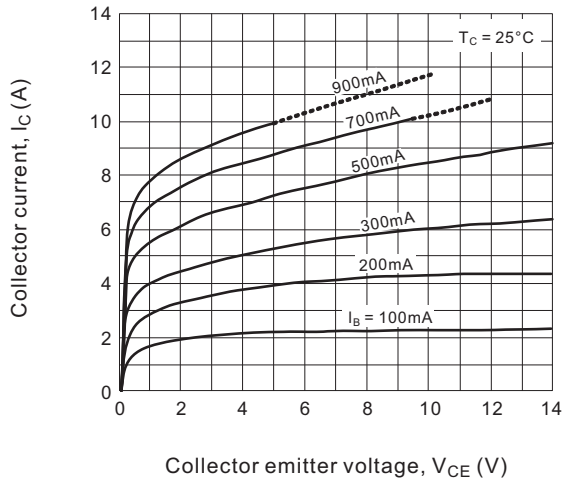
### \*V<sub>CEO(sus)</sub> Test circuit



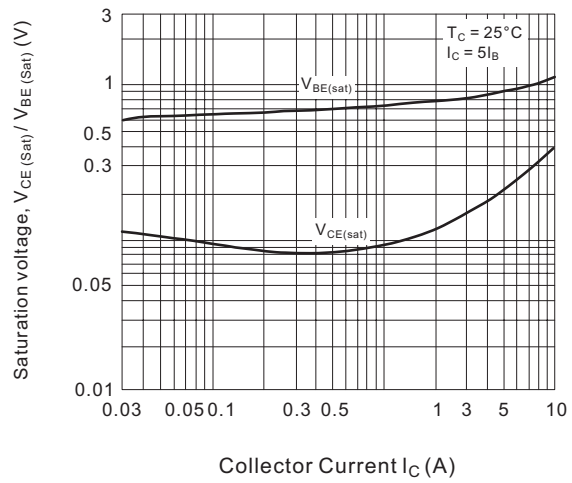
### • Switching time test circuit



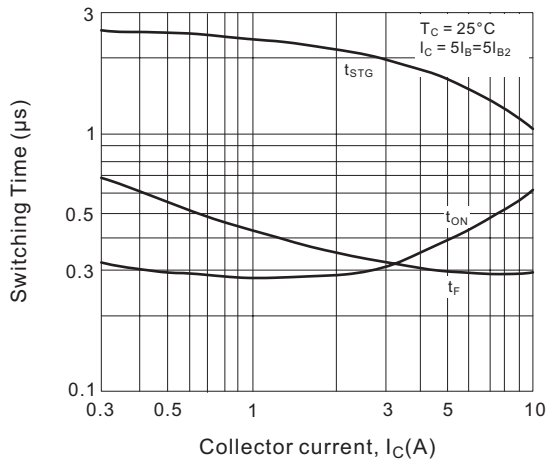
**Fig.1 Collector output characteristics**



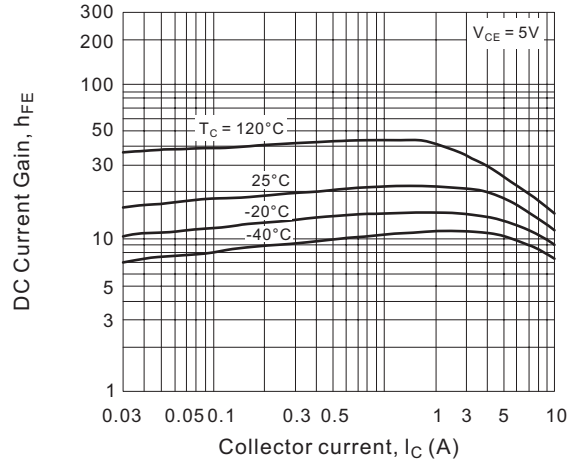
**Fig.2 Base and collector saturation voltage**



**Fig.3 Switching time**



**Fig.4 DC Current gain**



**Fig.5 Safe operating area**

