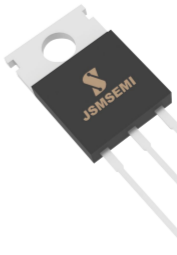
DESCRIPTION

- With TO-220C package
- High voltage ,high speed



TO-220

APPLICATIONS

- Particularly suited for 115V and 220V switchmode applications such as switching regulators,inverters ,motor controls,solenoid/ relay drivers and deflection circuits

Absolute maximum ratings(Tc=25℃)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	Open emitter	700	V
V_{CEO}	Collector-emitter voltage	Open base	400	V
V_{EBO}	Emitter-base voltage	Open collector	9	V
I_C	Collector current (DC)		12	A
I_{CM}	Collector current-Peak		24	A
I_E	Emitter current		18	A
I_{EM}	Emitter current-Peak		36	A
I_B	Base current		6	A
I_{BM}	Base current-Peak		12	A
P_D	Total power dissipation	T_a=25℃	2	W
		T_C=25℃	100	
T_j	Junction temperature		150	℃
T_{stg}	Storage temperature		-65~150	℃

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ j\text{-}C}$	Thermal resistance from junction to case	1.25	℃/W

CHARACTERISTICS

Tj=25℃ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEO(SUS)}$	Collector-emitter sustaining voltage	I_C=10mA; I_B=0	400			V
$V_{CEsat-1}$	Collector-emitter saturation voltage	I_C=5A; I_B=1A			1.0	V
$V_{CEsat-2}$	Collector-emitter saturation voltage	I_C=8A ;I_B=1.6A T_C=100℃			1.5 2.0	V
$V_{CEsat-3}$	Collector-emitter saturation voltage	I_C=12A; I_B=3A			3.0	V
$V_{BEsat-1}$	Base-emitter saturation voltage	I_C=5A; I_B=1A			1.2	V
$V_{BEsat-2}$	Base-emitter saturation voltage	I_C=8A; I_B=1.6A T_C=100℃			1.6 1.5	V
I_{CEV}	Collector cut-off current	V_{CEV}=Rated value, $V_{BE(off)}$=1.5V dc;T_C=100℃			1.0 5.0	mA
I_{EBO}	Emitter cut-off current	V_{EB}=9V; I_C=0			1.0	mA
h_{FE-1}	DC current gain	I_C=5A ; V_{CE}=5V	8		40	
h_{FE-2}	DC current gain	I_C=8A ; V_{CE}=5V	6		30	
f_T	Transition frequency	I_C=0.5A ; V_{CE}=10V;f=1MHz	4			MHz
C_{OB}	Collector outoput capacitance	I_E=0; f=0.1MHz ; V_{CB}=10V		180		pF
Switching times resistive load						
t_d	Delay time	V_{CC}=125V ,I_C=8A I_{B1}=-I_{B2}=1.6A t_p=25 μ s duty cycle≤1%		0.06	0.1	μ s
t_r	Rise time			0.45	1.0	μ s
t_s	Storage time			1.30	3.0	μ s
t_f	Fall time			0.20	0.7	μ s

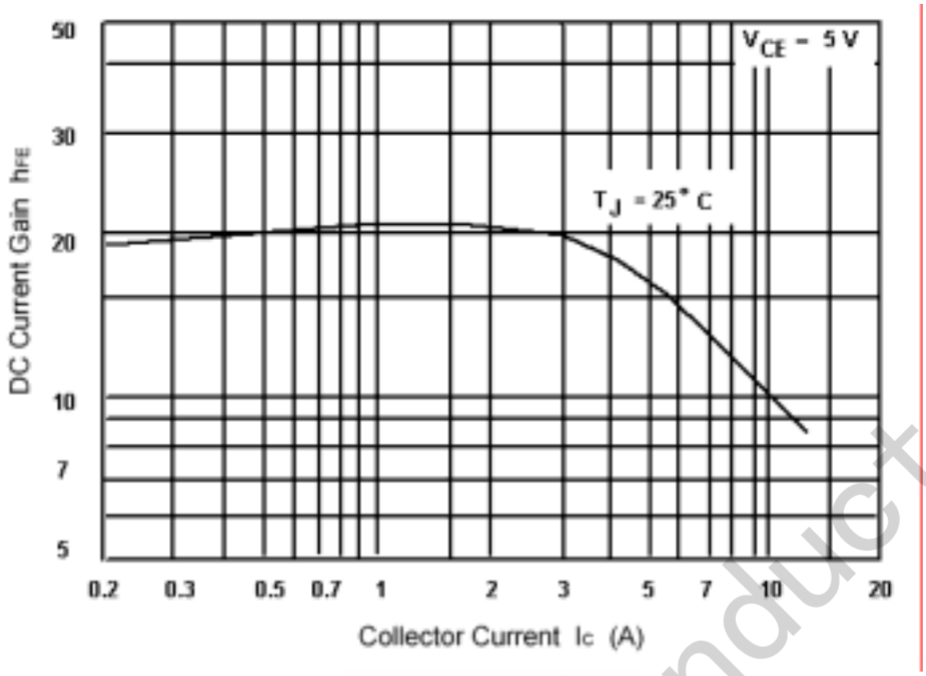


Fig.3 DC Current Gain

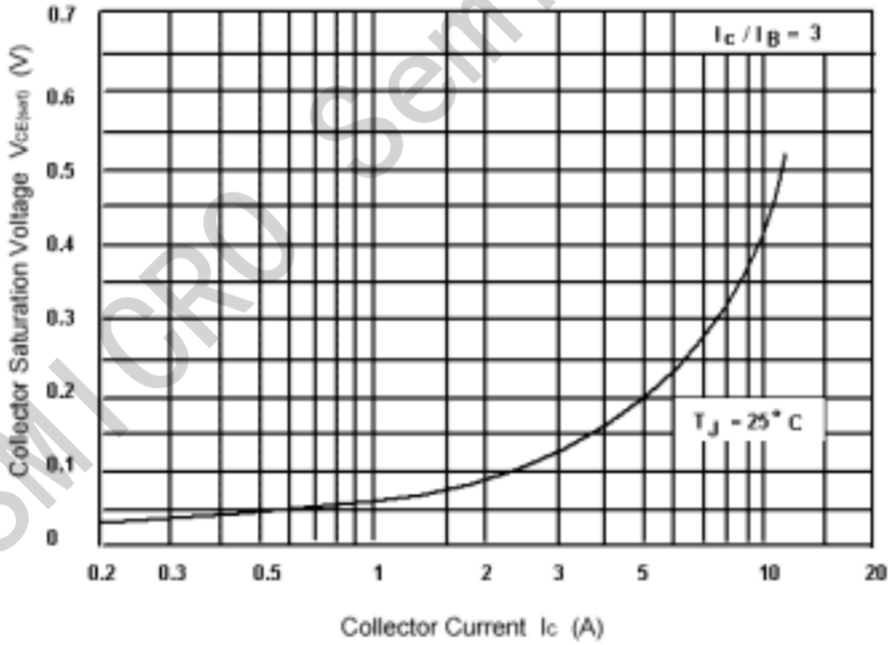


Fig.4 Collector–Emitter Saturation Voltage

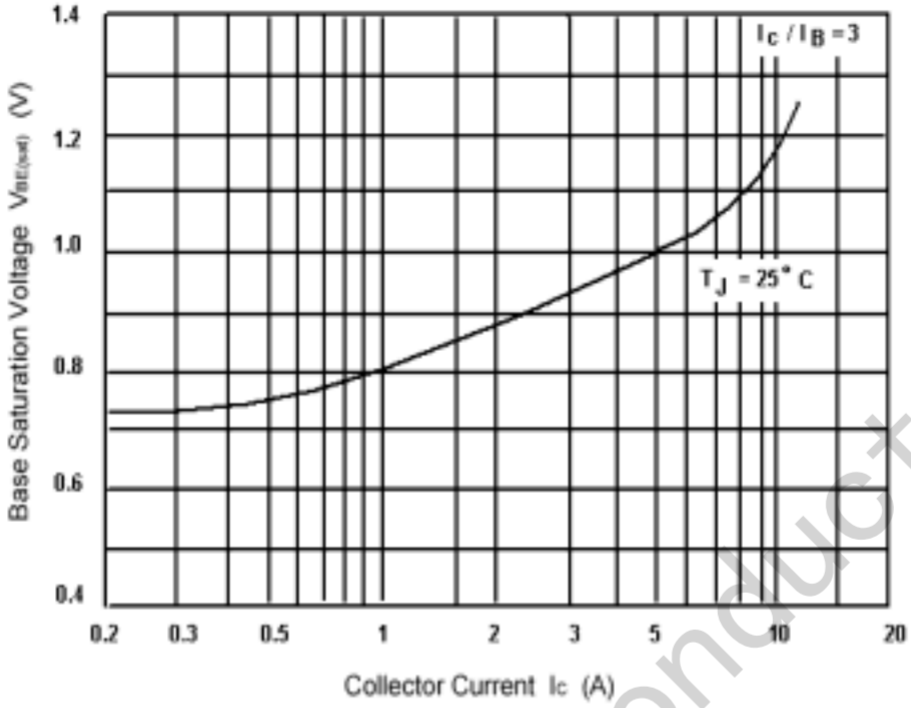


Fig.5 Base–Emitter Saturation Voltage

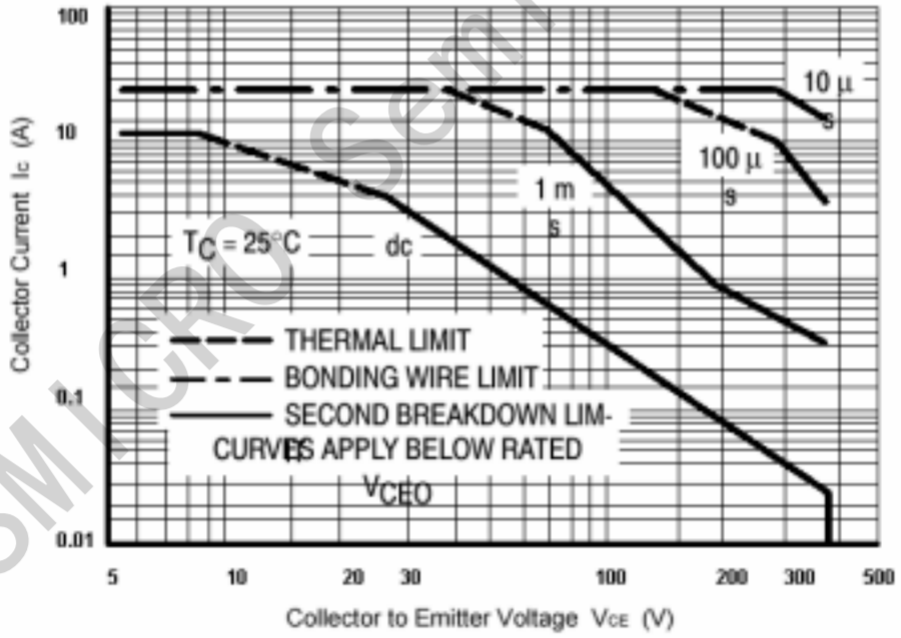
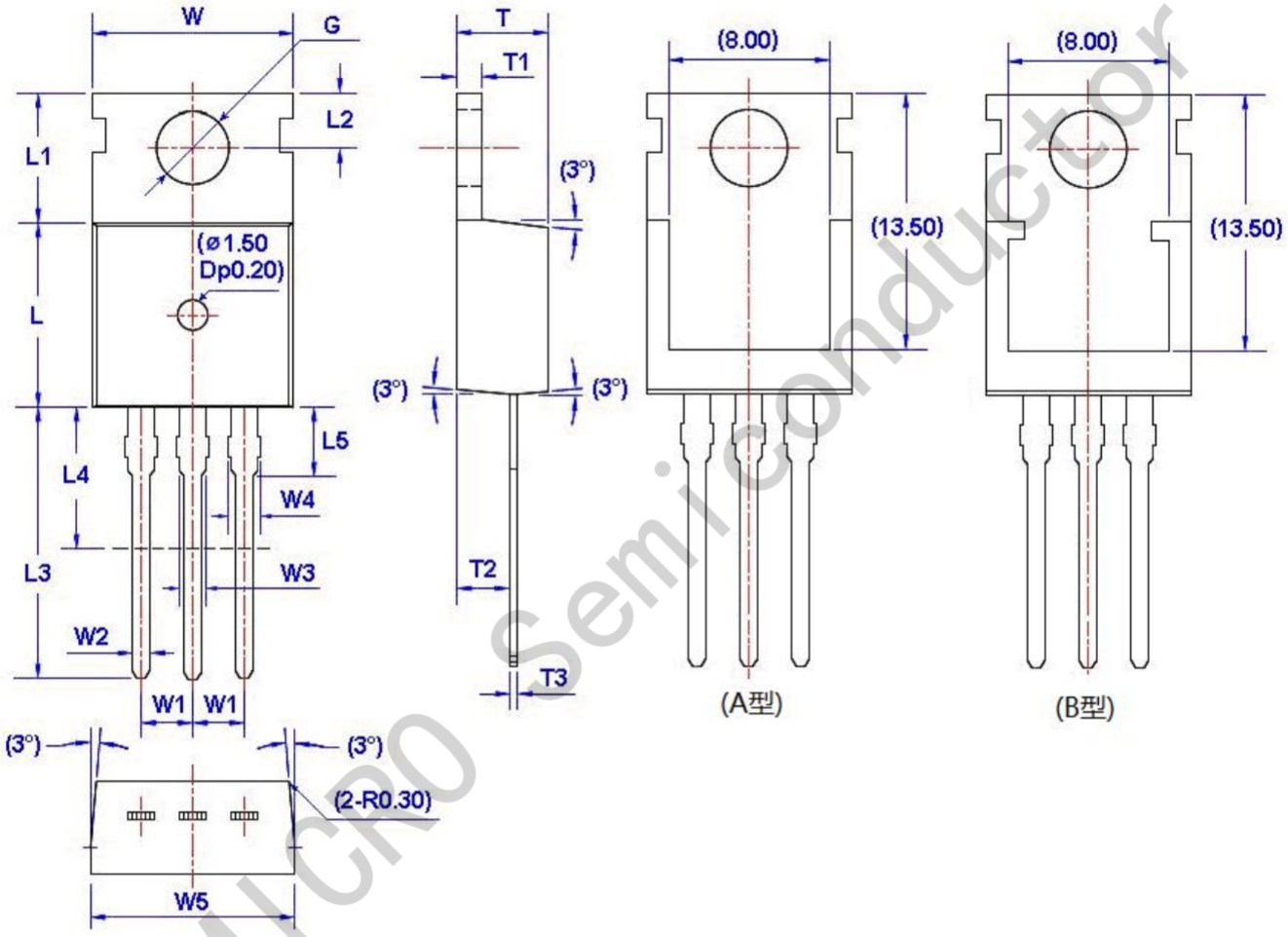


Fig.6 Safe Operating Area

Package Information

TO-220



Unit: mm

Symbol	Size		Symbol	Size		Symbol	Size		Symbol	Size	
	Min	Max		Min	Max		Min	Max		Min	Max
W	9.66	10.28	W5	9.80	10.20	L4**	6.20	6.60	T3	0.45	0.60
W1	2.54（TYP）		L	9.00	9.40	L5	2.79	3.30	G(Φ)	3.50	3.70
W2	0.70	0.95	L1	6.40	6.80	T	4.30	4.70			
W3	1.17	1.37	L2	2.70	2.90	T1	1.15	1.40			
W4*	1.32	1.72	L3	12.70	14.27	T2	2.20	2.60			