Rev.D Oct.-2015

WR06S ṂṂƐꟽ⅄ ᴥǁὺɥᒣ Insulated-Gate Bipolar Transistor in a TO-3P Plastic Package.

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Low gate charge,, Low saturation voltage ,Positive temperature coefficient, RoHS product.

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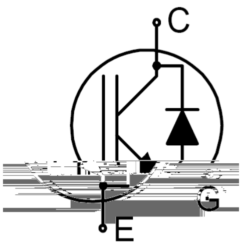
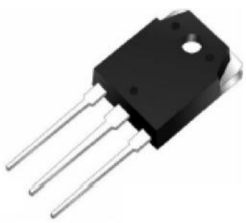
General purpose inverter, Frequency converters, Induction Heating(IH), Uninterrupted Power Supply(UPS).





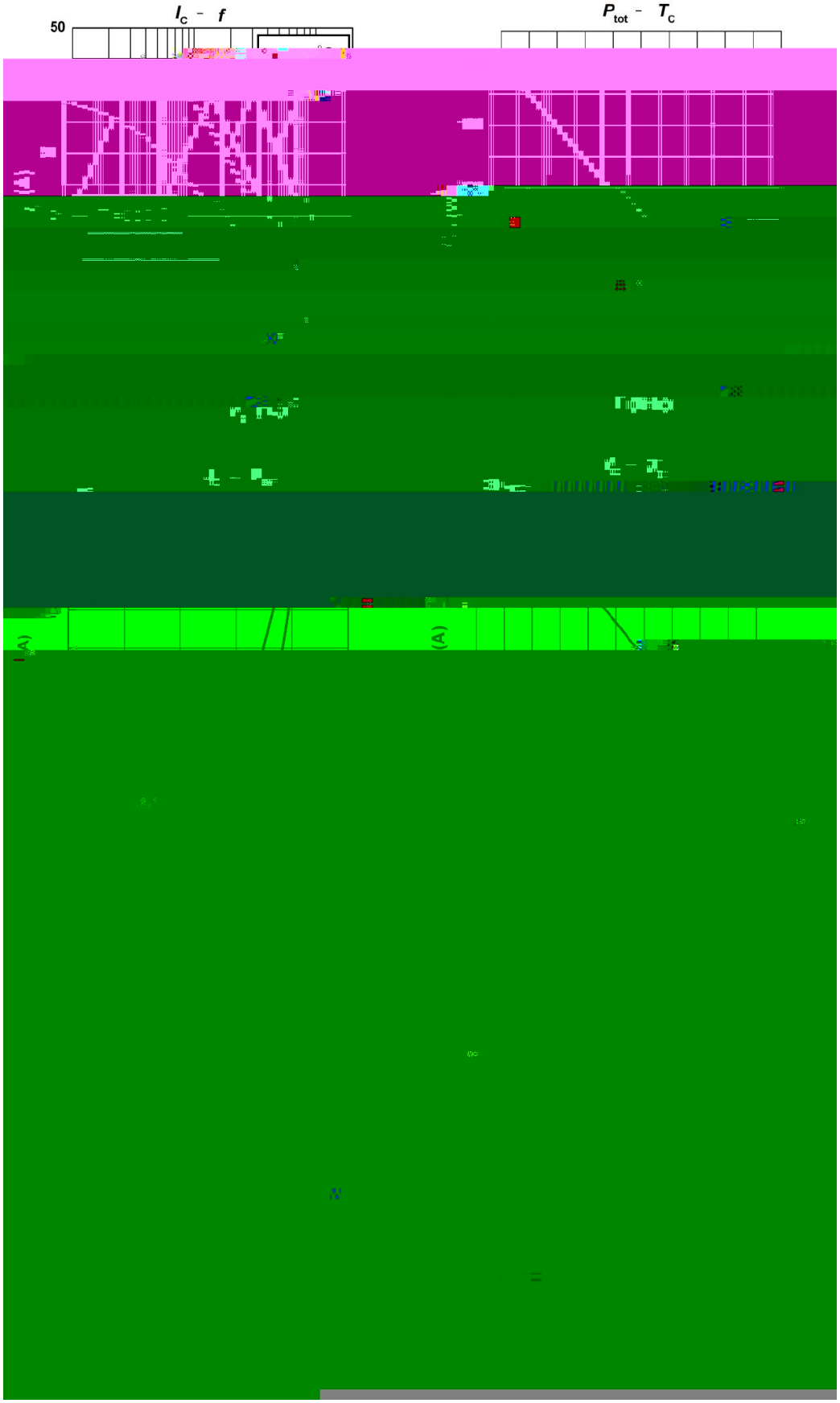
PIN1 χ Gate PIN 2 χ Collector PIN 3 χ Emitter

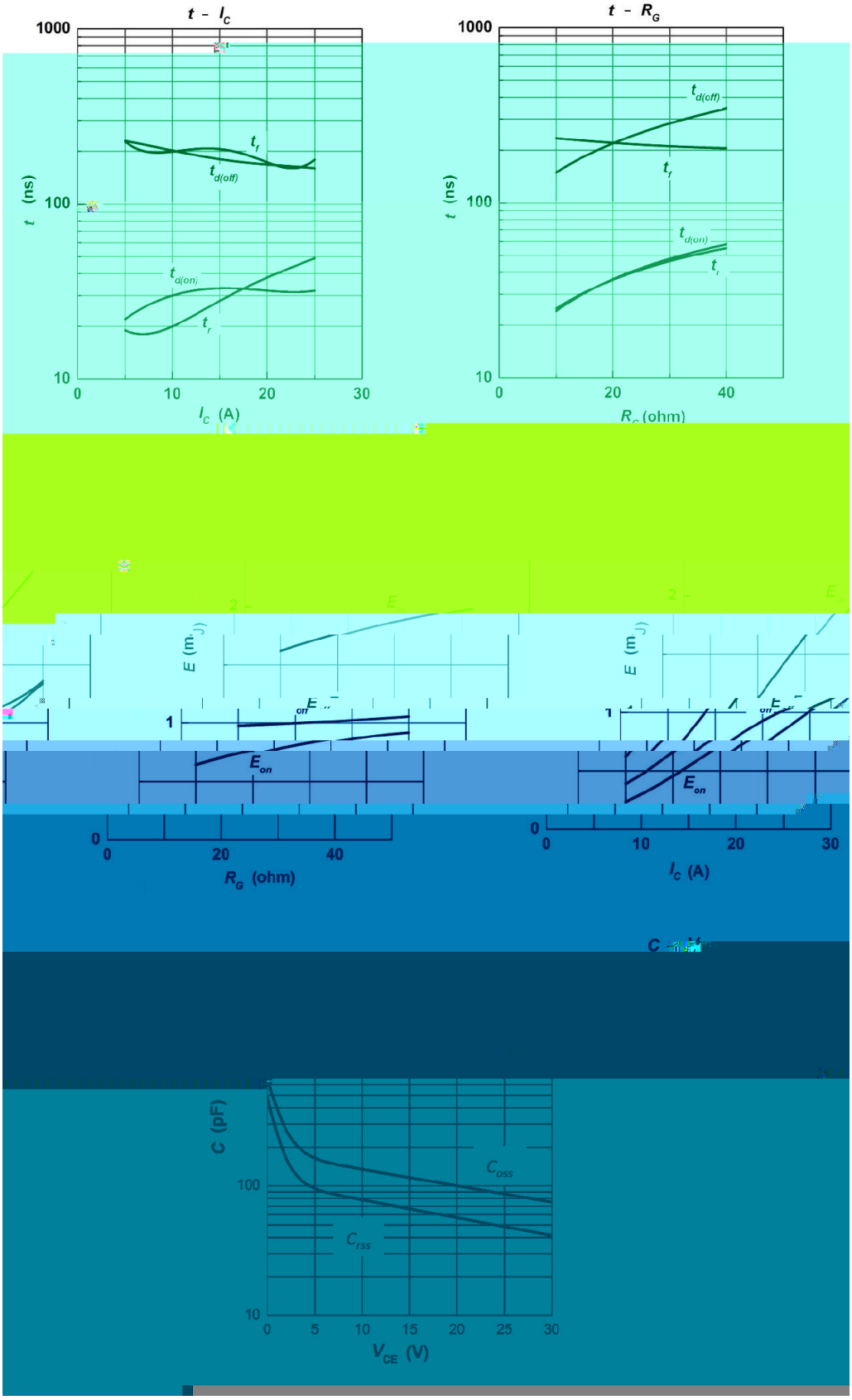
ȸᴍ᠊ݐ̋ See Marking Instructions.

v ‴Ω Parameter	ϒ N Symbol	‴Ω Ö Rating	D Ч Unit
Collector-emitter voltage	V_{CES}	1200	V
Gate-emitter voltage	V_{GES}	±20	V
Collector current	I_C	30	A
Collector current@T_C=100℃		15	A
Collector peak current, T_P limited by T_{JMAX}	I_{CM}	45	A
Diode forward current@T_C=100℃	I_F	15	A
Diode maximum forward current	I_{FM}	45	A
Power dissipation(T_C=25℃)	P_D	186	W
Power dissipation(T_c=100℃)		74	W
Operating junction and storage temperature range	$T_{J,}$ T_{stg}	-55～150	℃
Maximum temperature for soldering	T_L	300	℃
IGBT thermal resistance,junction-case	$R_{th(j-c)}$	0.67	℃/W
Diode thermal resistance,junction-case	$R_{th(j-C)}$	2.88	℃/W
Thermal resistance,junction-ambient	$R_{th(j-a)}$	40	℃/W

v ‴Ω Parameter	ϒ N Symbol	╨ :ϒ Ţ Test Conditions	ώ ņ Ö Min	Ɛ ʒ Ö Typ	ώ ᶻ Ö Max	D Ч Unit
Collector-emitter breakdown voltage	V_{CES}	V_{GE}=0V; I_{CE}=250uA	1200	-	-	V
Zero gate voltage Collector current	I_{CES}	V_{GE}=0V;V_{CE}=1200V	-	-	1	mA
Gate-body leakage current	I_{GES}	V_{GE}=±20V;V_{CE}=0V	-	-	±250	nA
Gate threshold voltage	$V_{GE(th)}$	I_C=15mA;V_{CE}=V_{GE}	5.0	6.4	7.0	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=15A; V_{GE}=15V	-	2	2.5	V
Input capacitance	C_{ies}	V_{CE}=30V,V_{GE}=0V,f=1MHz	-	2620	-	pF
Output capacitance	C_{oes}		-	67	-	
Reverse transfer capacitance	C_{res}		-	43	-	

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-on delay time	$t_{d(ON)}$	V_{CE}=600V I_C=15A R_G=15Ω V_{GE}=15/0V Inductive Load	-	25	-	ns
Rise time	t_r		-	48	-	
Turn-off delay time	$t_{d(OFF)}$		-	155	-	
Fall time	t_f		-	115	-	
Turn-On Switching Loss	E_{on}		-	0.67	-	mJ
Turn-Off Switching Loss	E_{off}		-	0.45	-	
Total Switching Loss	E_{ts}		-	1.12	-	
Total gate charge	Q_G	V_{CE}=600V I_C=15A V_{GE}=15V	-	130	180	nC
Gate-emitter charge	Q_{G-E}		-	15	22	
Gate-collector charge	Q_{G-C}		-	50	65	
Diode forward voltage	V_F	I_F=15A	-	1.2	2.0	V
Reverse recovery time	Trr	I_F=15A di/dt=200A/μS	-	330	360	ns
Diode Peak Reverse Recovery Current	Irr		-	30	40	A
Reverse recovery charge	Qrr		-	4770	6600	nC


I_C - f
50
P_{tot} - T_C


t - I_C
1000
100
10
t (ns)
t_f
t_d(off)
t_d(on)
t_r
0
10
20
30
I_C (A)
t - R_G
1000
100
10
t (ns)
t_d(off)
t_f
t_d(on)
t_r
0
20
40
R_G (ohm)
E (mJ)
E_on
0
0
20
40
R_G (ohm)
E (mJ)
E_on
0
0
10
20
30
I_C (A)
C (pF)
C_oss
C_rss
100
10
0
5
10
15
20
25
30
V_CE (V)

/

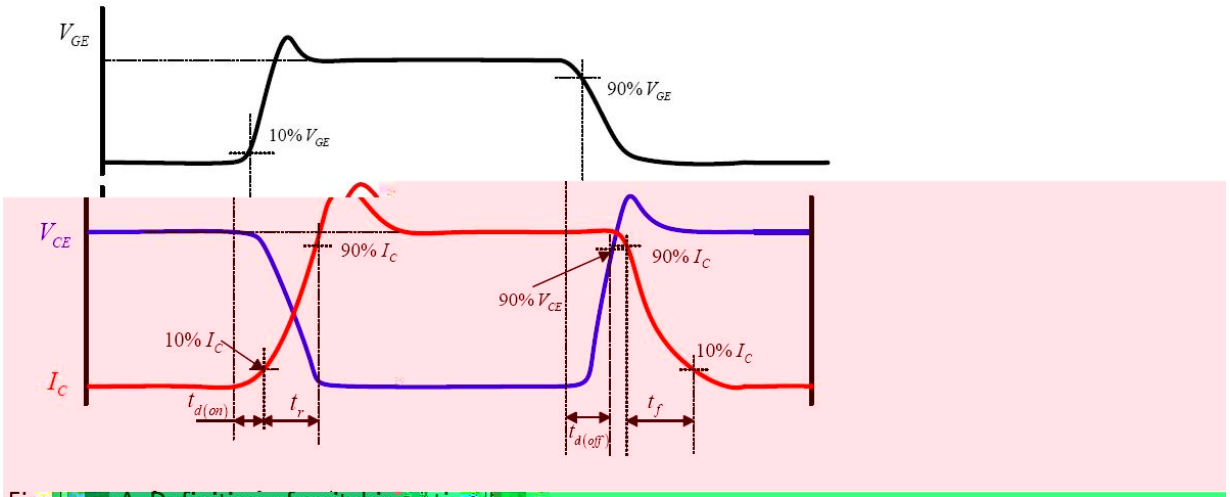
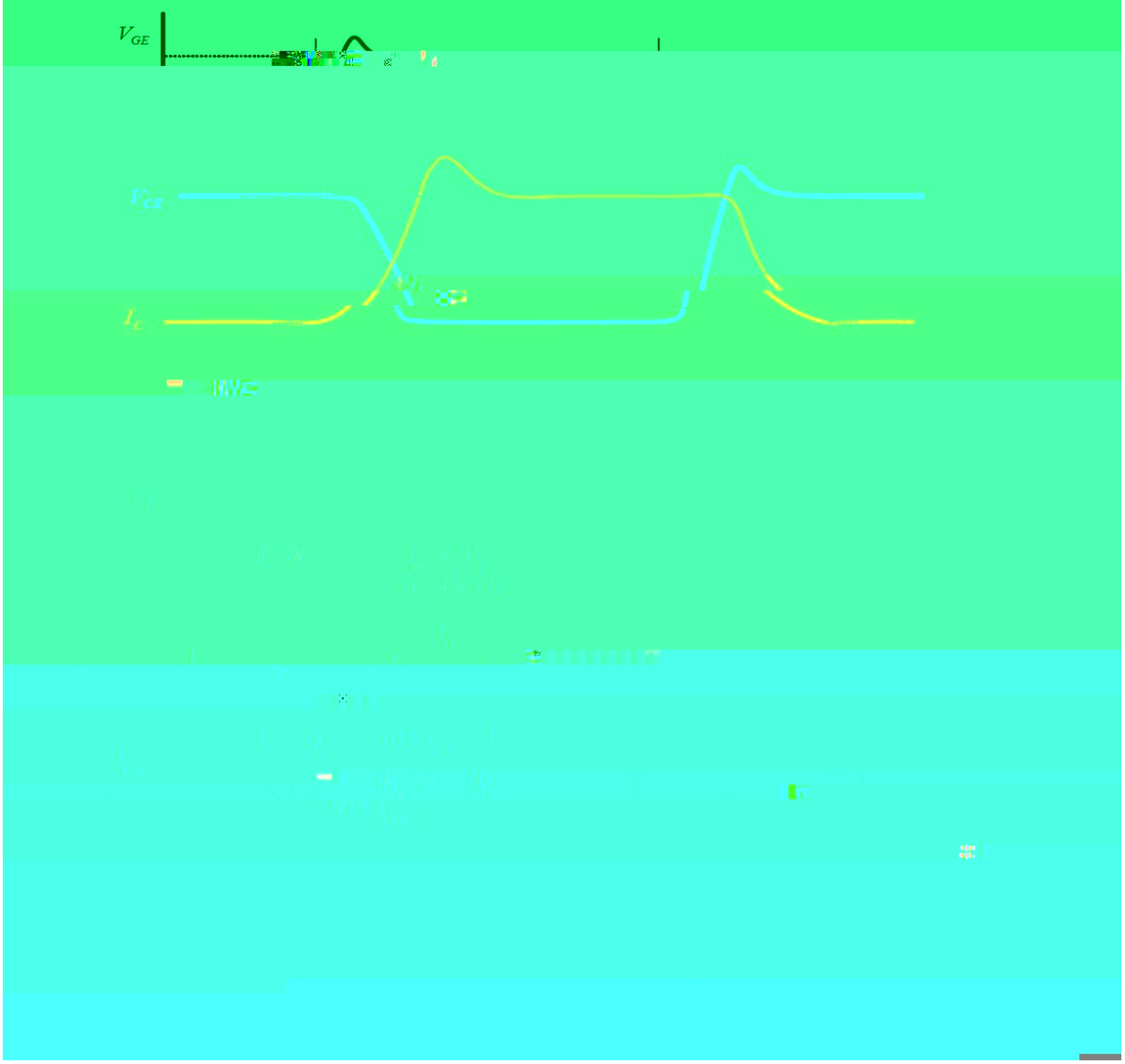
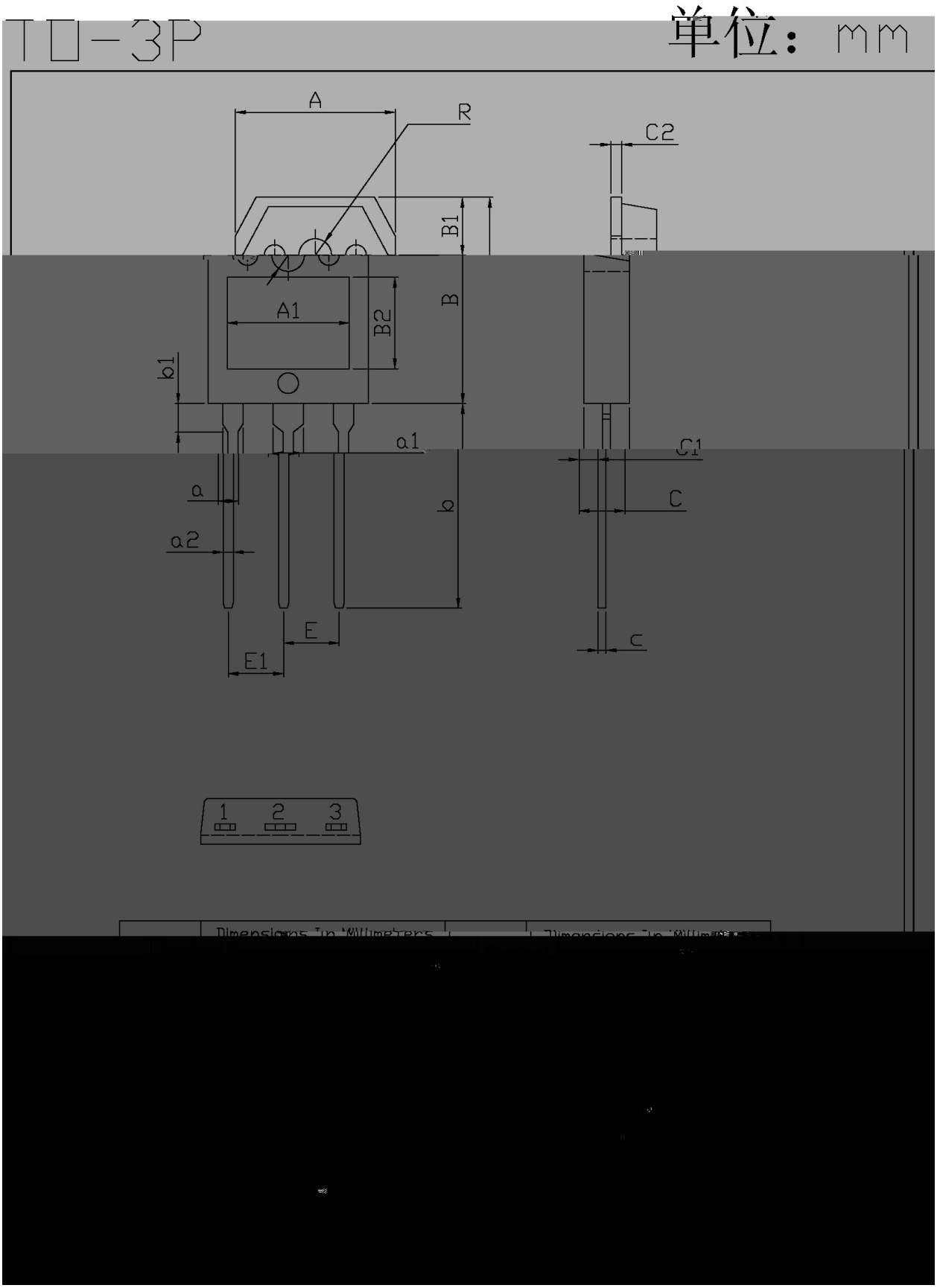


Fig. 4 A Definition of switching times




TO-3P
单位：mm
A
R
C2
B1
B
A1
B2
b1
a1
C1
a
b
C
a2
E
E1
c
1 2 3

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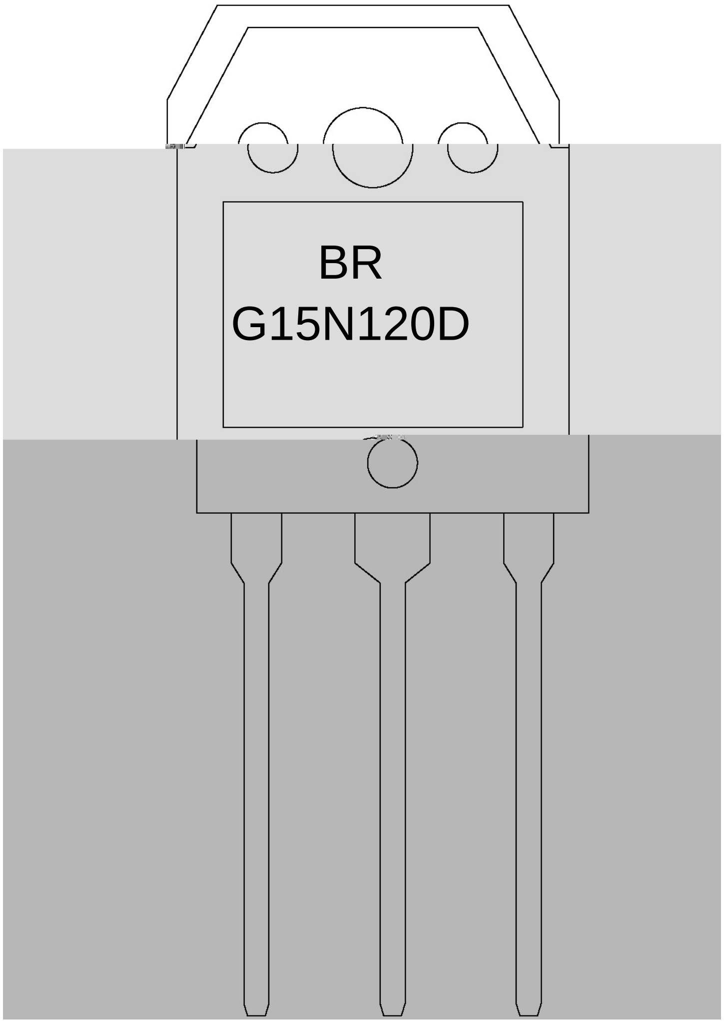
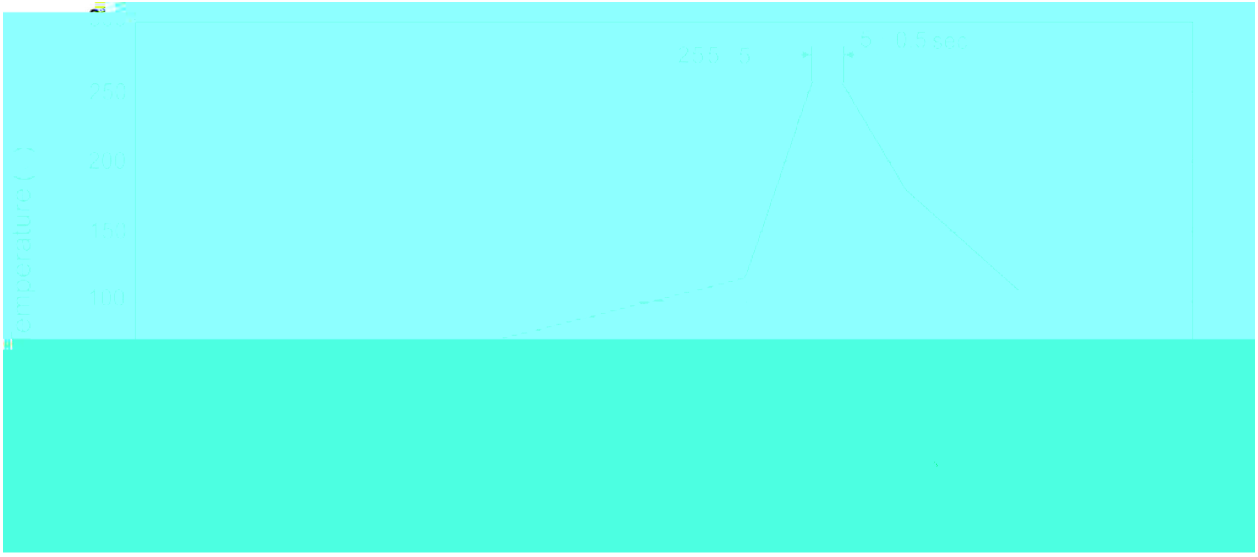


ب ˝ χ

EU꞊	ꞕ ʅ ᴻ Ꮒ
J48Q453G χ	ꞕ ꞙ ᵝ ʒ ᴺ
---- χ	ꞕ ɨ ꞙ ῆ ᴺ Ꮒ ɩ ɞ ɨ ꞙ ῆ ᴺ ψ ק
Note:	
BR:	Company Code.
G15N120D:	Product Type.
****:	Lot No. Code, code change with Lot No.



ب ˝ χ

1 ỉ ♬ □ ŷ 25 Ḱ 150 ł ı `H ڙ 60 Ḱ 90sec;

2 Ś Ӧ □ ŷ 255 ° 5 ł ı `H ڙ 'Y ⩘ 㶅 5 ° 0.5sec;

3 ỉ ˙ ˥ ˛ ɔ ﻪ ŷ 㶅 2 Ḱ 10 ł /sec.

Note:

1.Preheating:25~150 ł , Time:60~90sec.

2.Peak Temp.:255 ° 5 ł , Duration:5 ° 0.5sec.

3. Cooling Speed: 2~10 ł /sec.

□ ŷ χ 270 ° 5 ł `H ڙ χ 10 ° 1 sec.

Temp.:270±5℃ Time:10±1 sec

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Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm^3)		
	只 套管	套管 盒	只 盒	盒 箱	只 箱	套管	盒	箱