

/ Descriptions

KF \$* G Insulated-Gate Bipolar Transistor in a TO-3P Plastic Package.

/ Features

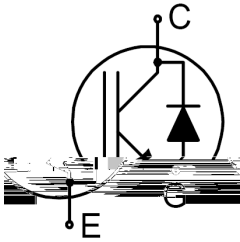
I f ? J

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

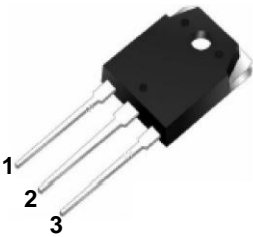
/ Applications

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

/ Equivalent Circuit



/ Pinning



PIN1 Gate PIN 2 Collector PIN 3 Emitter

/ h_{FE} Classifications & Marking

See Marking Instructions.

Parameter	Symbol	Rating	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

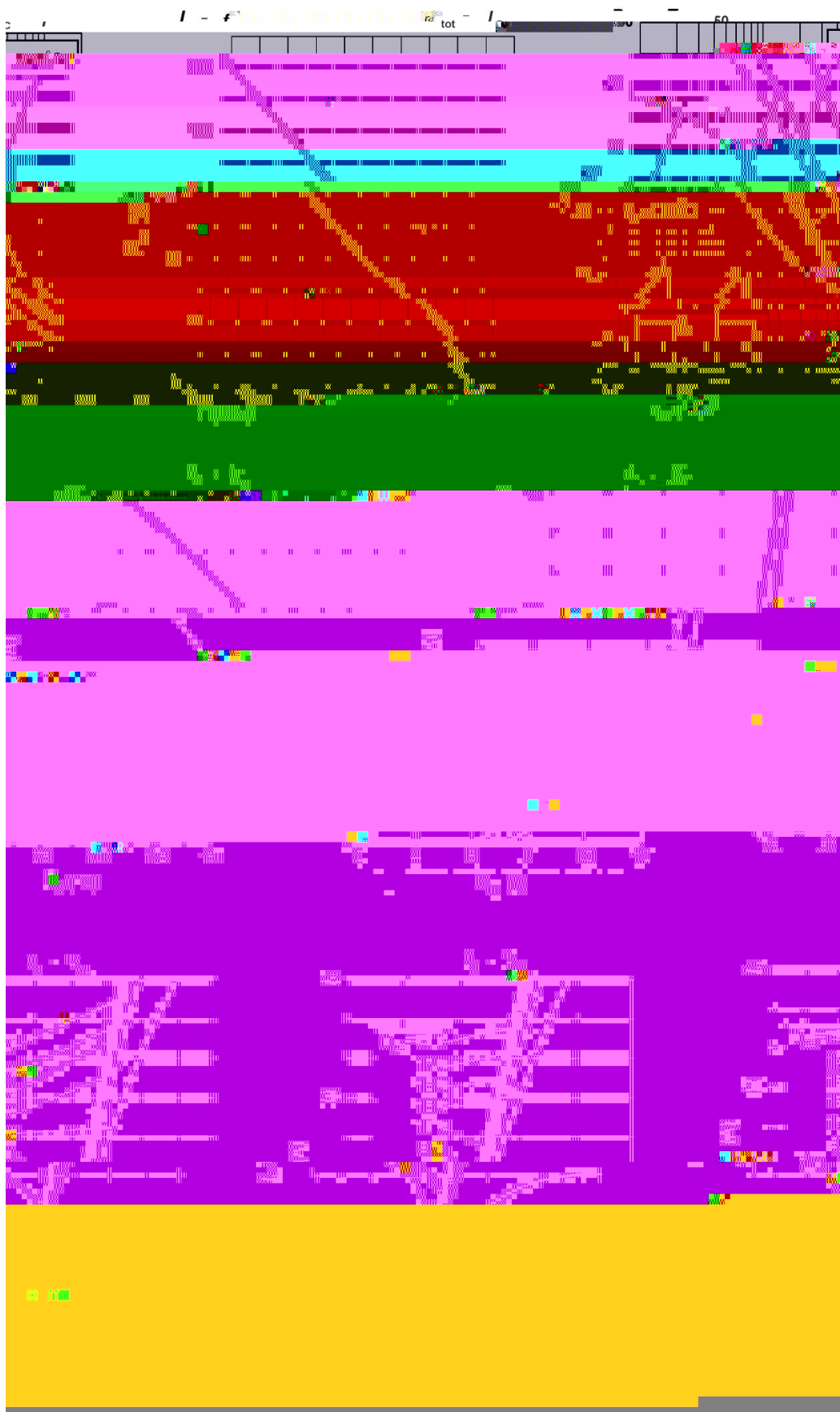
Parameter	Symbol	Test Conditions	Min	Max
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θ_{PG}°

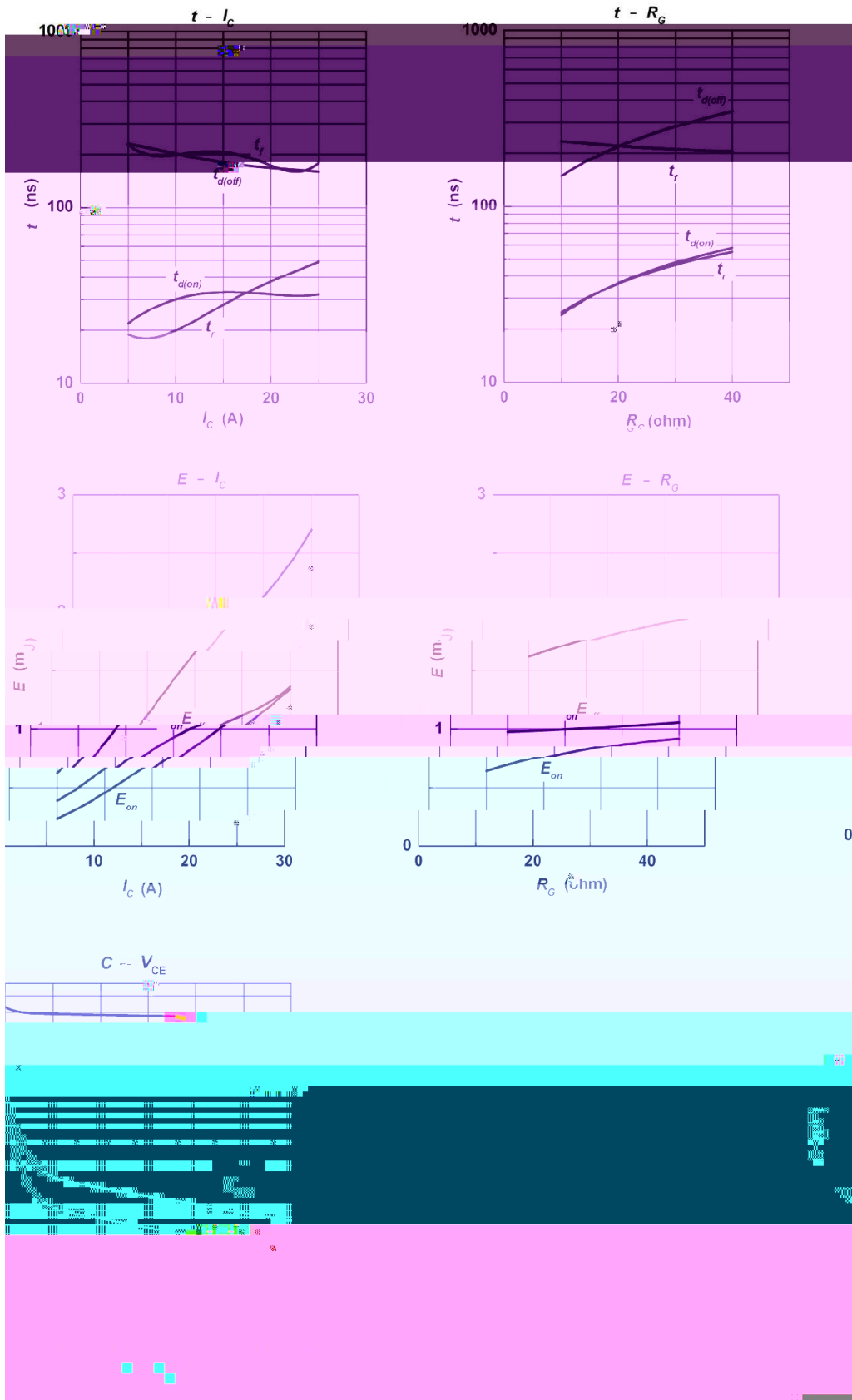
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-on delay time	$t_{d(ON)}$	$V_{CE}=600V$ $I_C=15A$ $R_G=15$ $V_{GE}=15/0V$ 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	T_{rr}	$I_F=15A$ $di/dt=200A/\mu S$	-	330	360	ns
Diode Peak Reverse Recovery Current	I_{rr}		-	30	40	A
Reverse recovery charge	Q_{rr}		-	4770	6600	nC

/ Electrical Characteristic Curve



/ Electrical Characteristic Curve



/ Wave curve

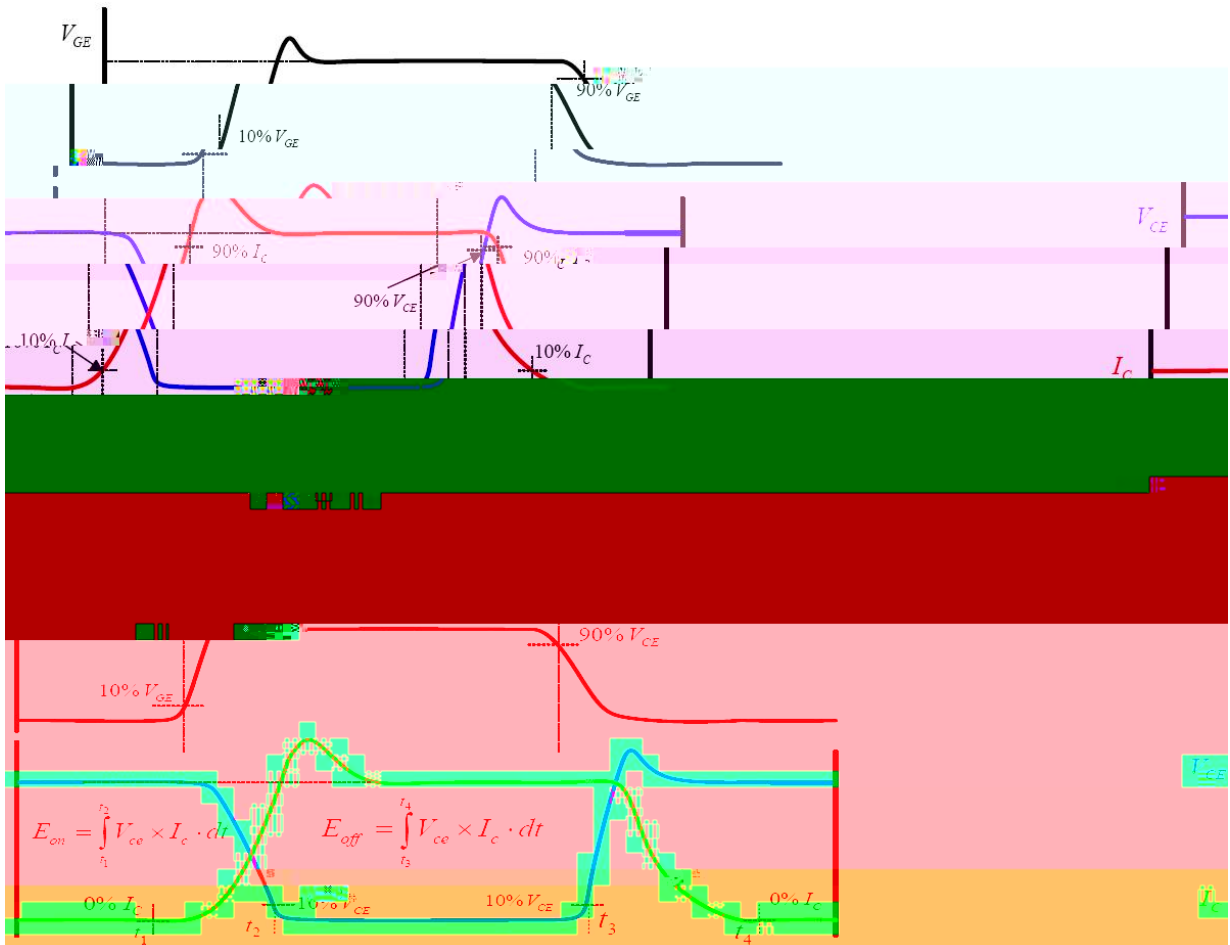
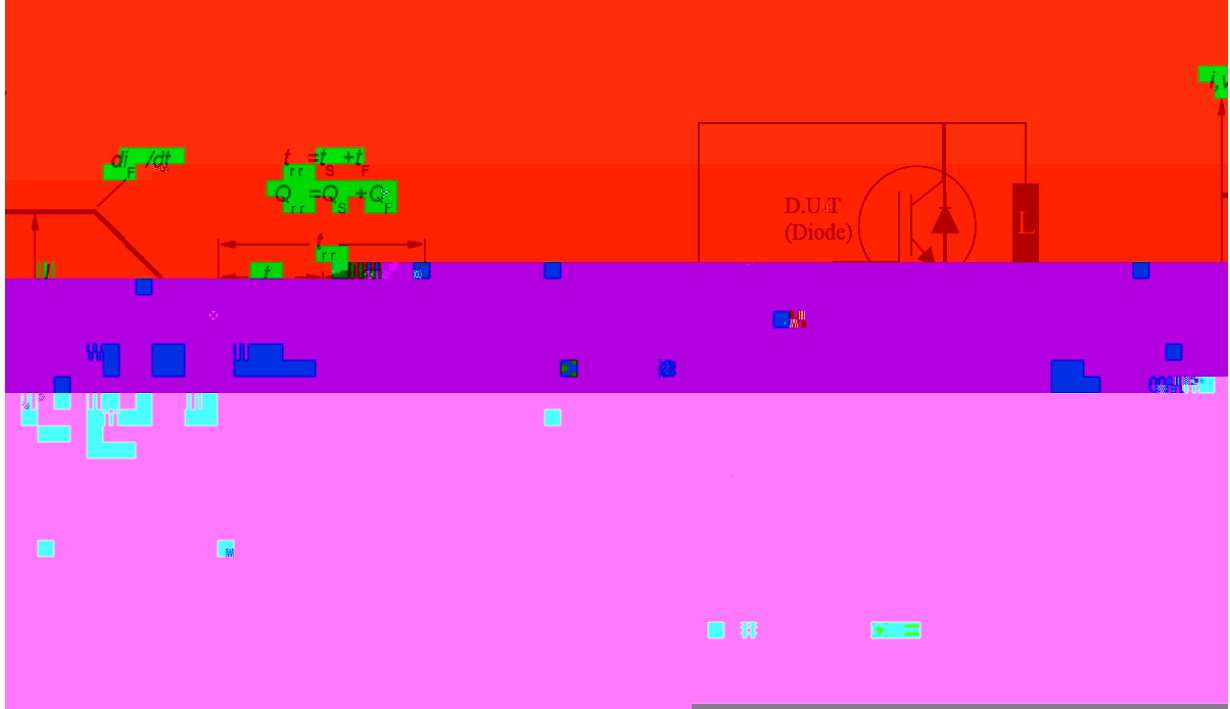
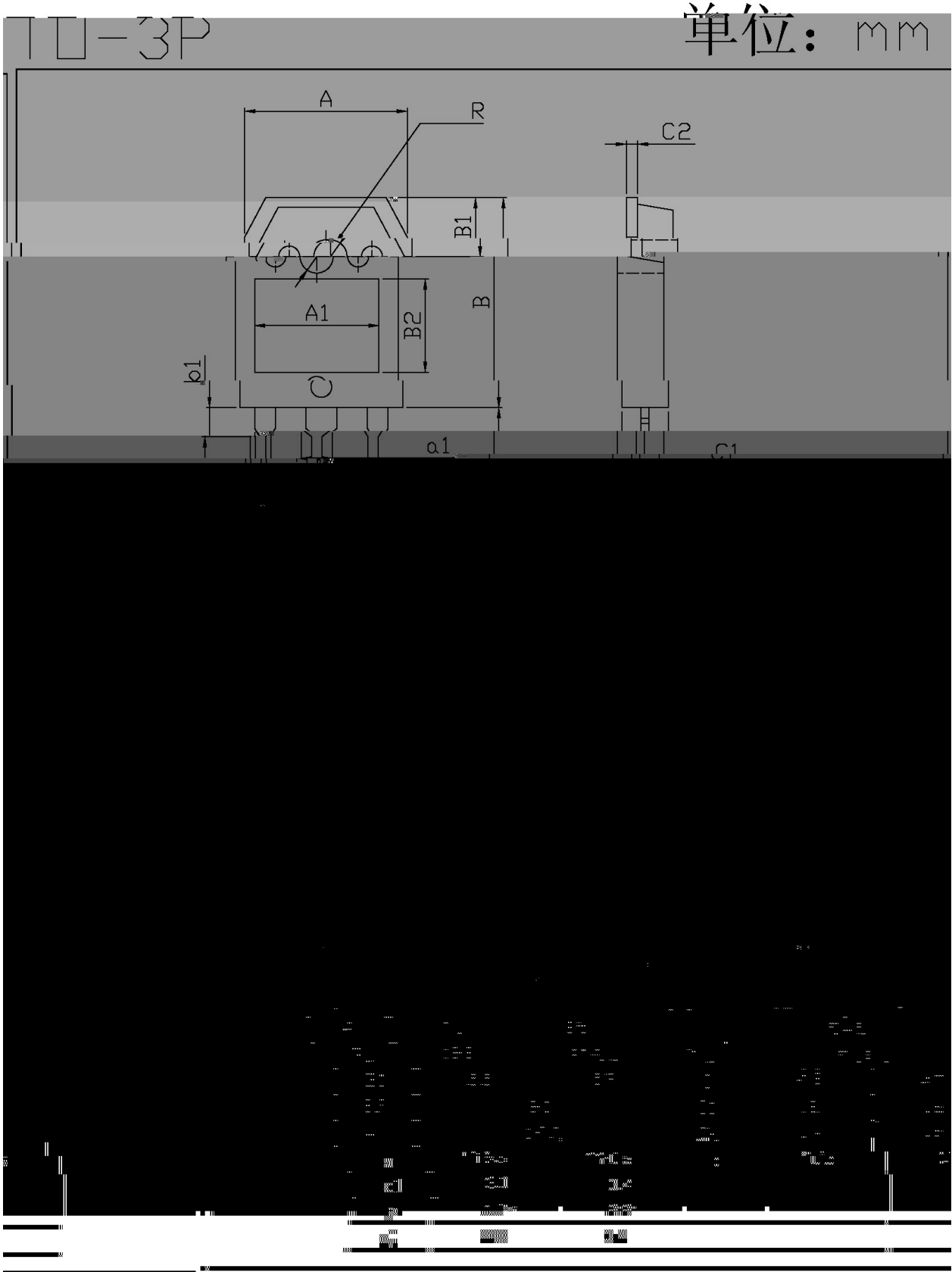


Figure 2: Definition of switching losses

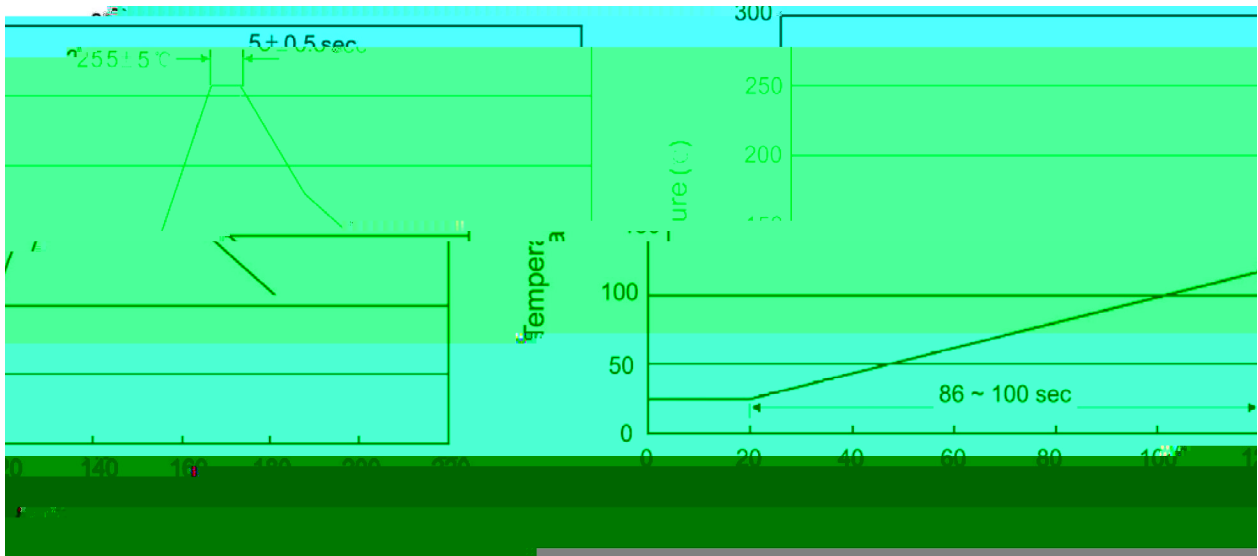


/ Package Dimensions



BRG15N120D

() / Temperature Profile for Dip Soldering(Pb-Free)



Note:

- | | | | |
|---|------------|------------|---|
| 1 | 25 150 | 60 90sec; | 1.Preheating:25~150 , Time:60~90sec. |
| 2 | 255..5 | 5..0.5sec; | 2.Peak Temp.:255..5 , Duration:5..0.5sec. |
| 3 | 2 10 /sec. | | 3. Cooling Speed: 2~10 /sec. |

/ Resistance to Soldering Heat Test Conditions

270..5 10..1 sec. Temp.:270±5 Time:10±1 sec

/ Packaging SPEC.

/ TUBE

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Tube 只/套管	Tubes/Inner Box 套管/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Tube 套管	Inner Box 盒	Outer Box 箱
TO-3P	30	15	450	5	2250	497.5×46×8	555×164×50	575×290×180

/ Notices