产品规格书

批 准	审 核	校 核	编 制
纪春华	朴致均	赵宇辉	郑羿
2019.08.05	2019.08.05	2019.08.05	2019.08.05

规格书更改履历：

序号	更改内容	履历号	更改时间	责任人
1	新规制定	000	2019.08.05	郑羿

KODENSHI AUK

KRK1265F/FA

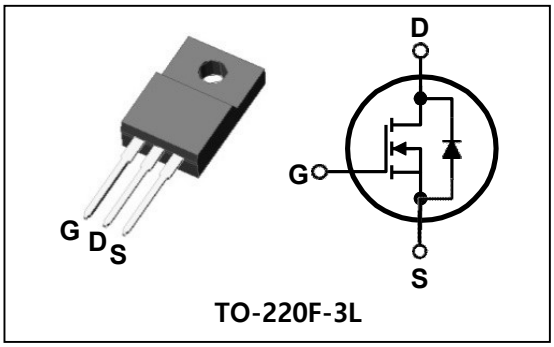
Advanced N-Ch Power MOSFET

SWITCHING REGULATOR APPLICATIONS

Features

- High Voltage : BV_{DSS}=650V(Min.)
- Low C_{rss} : C_{rss}=14.5pF(Typ.)
- Low gate charge : Qg=38nC(Typ.)
- Low $R_{DS(on)}$: $R_{DS(on)}$=0.88Ω(Max.)

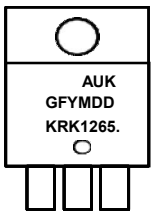
PIN Connection



Ordering Information

Type No.	Marking	Package Code
KRK1265F	KRK1265.	TO-220F-3L
KRK1265FA	KRK1265.	TO-220F-3L

Marking Diagram



Column 1 : Manufacturer

Column 2 : Production Information
e.g.) GFYMDD
-. G : Option Code (H : Halogen Free)
-. F : Factory management code
-. YMDD : Date Code (year, month, date)

Column 3 : Device Code . Dalian

Absolute maximum ratings (T_C=25°C unless otherwise noted)

Characteristic	Symbol		Rating	Unit
Drain-source voltage	V_{DSS}		650	V
Gate-source voltage	V_{GSS}		±30	V
Drain current (DC) *	I_D	T_C=25℃	12	A
		T_C=100℃	7.58	A
Drain current (Pulsed) *	I_{DM}		48	A
Power dissipation	P_D		32	W
Avalanche current (Single) ②	I_{AS}		12	A
Single pulsed avalanche energy ②	E_{AS}		140	mJ
Avalanche current (Repetitive) ①	I_{AR}		12	A
Repetitive avalanche energy ①	E_{AR}		3.2	mJ
Junction temperature	T_J		150	°C
Storage temperature range	T_{stg}		-55~150	

* Limited by maximum junction temperature

Characteristic		Symbol	Typ.	Max.	Unit
Thermal resistance	Junction-case	$R_{th(J-C)}$	-	3.9	℃/W
	Junction-ambient	$R_{th(J-A)}$	-	62.5	

Electrical Characteristics (T_C=25°C unless otherwise noted)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Drain-source breakdown voltage	BV_{DSS}	I_D=250uA, V_{GS}=0V	650	-	-	V
Gate threshold voltage	$V_{GS(th)}$	I_D=250uA, V_{DS}=V_{GS}	2.0	-	5.0	V
Drain-source cut-off current	I_{DSS}	V_{DS}=650V, V_{GS}=0V	-	-	1	uA
Gate leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±30V	-	-	±100	nA
Drain-source on-resistance ④	$R_{DS(on)}$	V_{GS}=10V, I_D=6.0A	-	0.68	0.88	Ω
Forward transfer conductance ④	g_{fs}	V_{DS}=10V, I_D=6.0A	-	13.5	-	S
Input capacitance	C_{iss}	V_{GS}=0V, V_{DS}=25V f=1 MHz	-	2470	-	pF
Output capacitance	C_{oss}		-	160	-	
Reverse transfer capacitance	C_{rss}		-	14.5	-	
Turn-on delay time	$t_{d(on)}$	V_{DD}=325V, I_D=12A R_G=25Ω ③④	-	38	-	ns
Rise time	t_r		-	95	-	
Turn-off delay time	$t_{d(off)}$		-	155	-	
Fall time	t_f		-	105	-	
Total gate charge	Q_g	V_{DS}=520V, V_{GS}=10V I_D=12A ③④	-	38	45	nC
Gate-source charge	Q_{gs}		-	15	-	
Gate-drain charge	Q_{gd}		-	9	-	

Source-Drain Diode Ratings and Characteristics (T_C=25°C unless otherwise noted)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Source current (DC)	I_S	Integral reverse diode in the MOSFET	-	-	12	A
Source current (Pulsed) ①	I_{SM}		-	-	48	
Forward voltage ④	V_{SD}	V_{GS}=0V, I_S=12A	-	-	1.4	V
Reverse recovery time	t_{rr}	I_S=12A, V_{GS}=0V dI_F/dt=100A/us	-	500	-	ns
Reverse recovery charge	Q_{rr}		-	4.3	-	uC

Note ;

① Repetitive rating : Pulse width limited by maximum junction temperature

② L=1.8mH, I_{AS}=12A, V_{DD}=50V, R_G=25Ω, Starting T_J=25℃

③ Pulse Test : Pulse width≤300us, Duty cycle≤2%

④ Essentially independent of operating temperature

Electrical Characteristic Curves

Fig. 1 Typical Output Characteristics

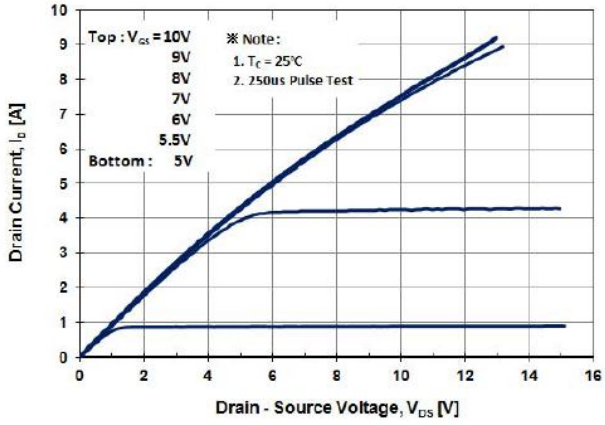


Fig. 2 Typical Output Characteristics

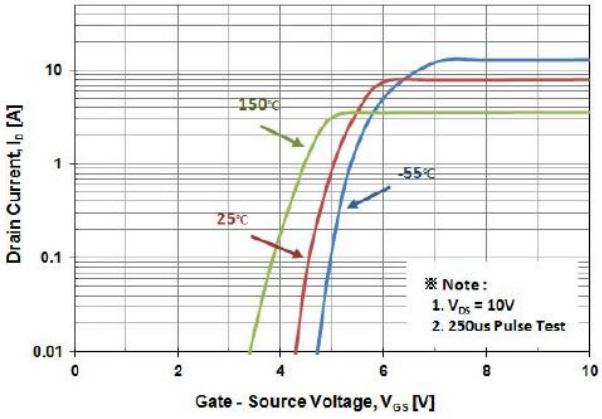


Fig.3 On-Resistance Variation with Drain Current and Gate Voltage

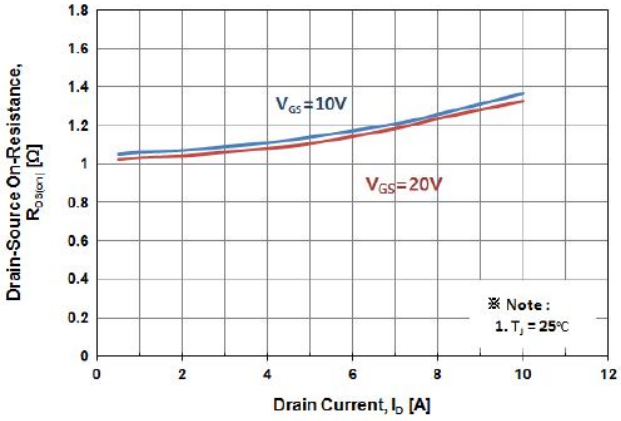


Fig. 4 Body Diode Forward Voltage Variation with Source Current

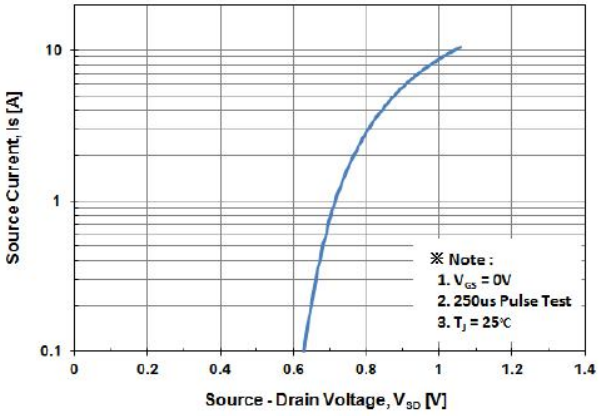


Fig. 5 Typical Capacitance Characteristics

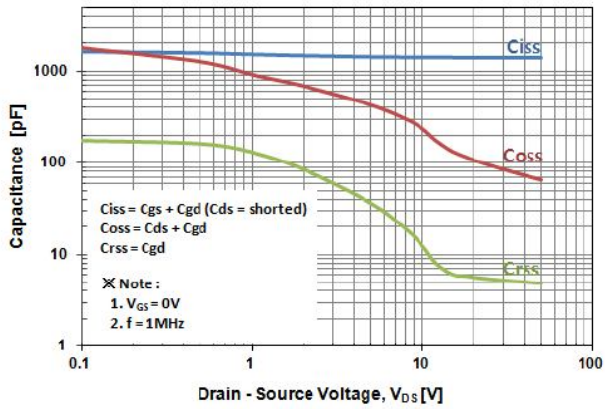
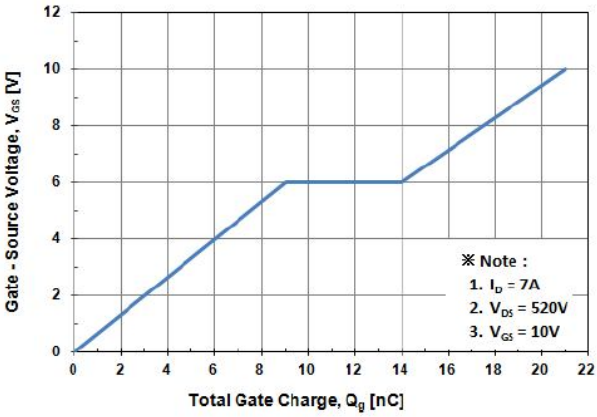


Fig. 6 Typical Total Gate Charge Characteristics



Electrical Characteristic Curves

Fig. 7 Breakdown Voltage Variation vs. Temperature

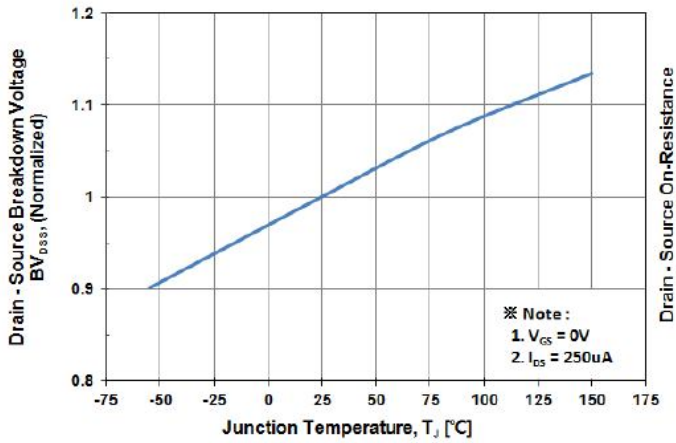


Fig. 8 On-Resistance Variation vs. Temperature

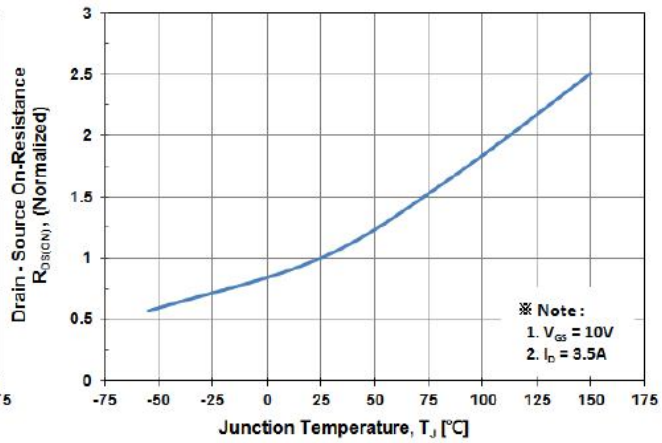


Fig. 9 Maximum Drain Current vs. Case Temperature

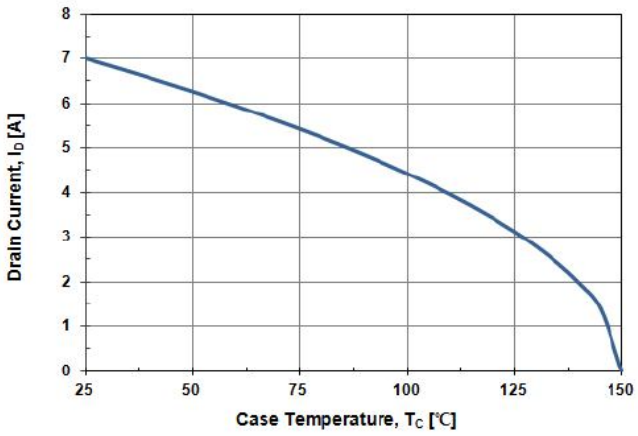


Fig. 10 Maximum Safe Operating Area

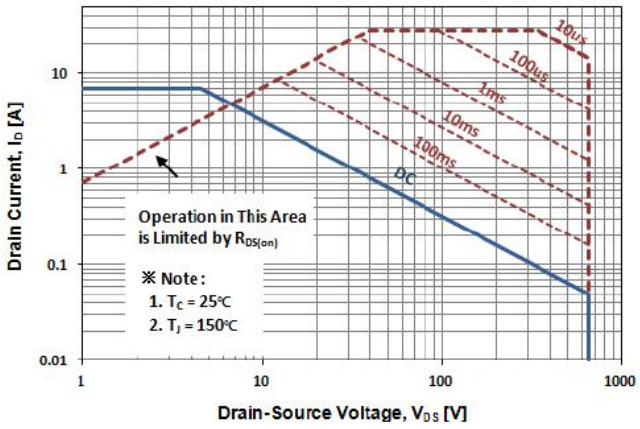


Fig. 11 Transient Thermal Impedance

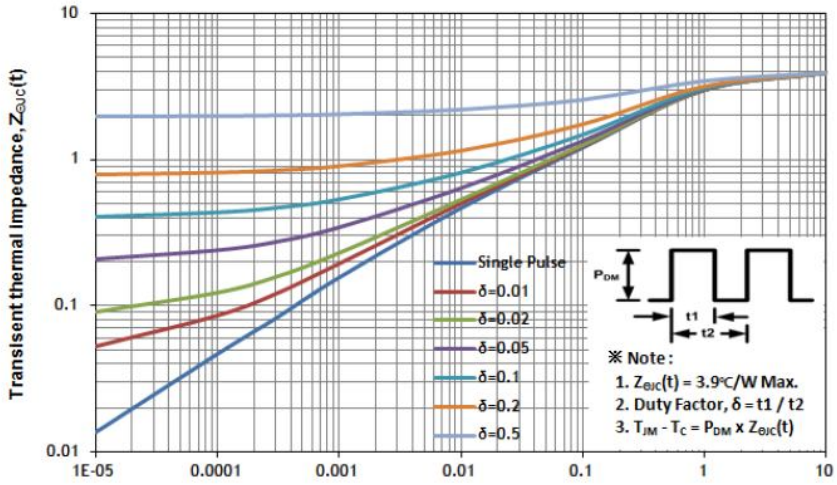


Fig. 12 Gate Charge Test Circuit & Waveform

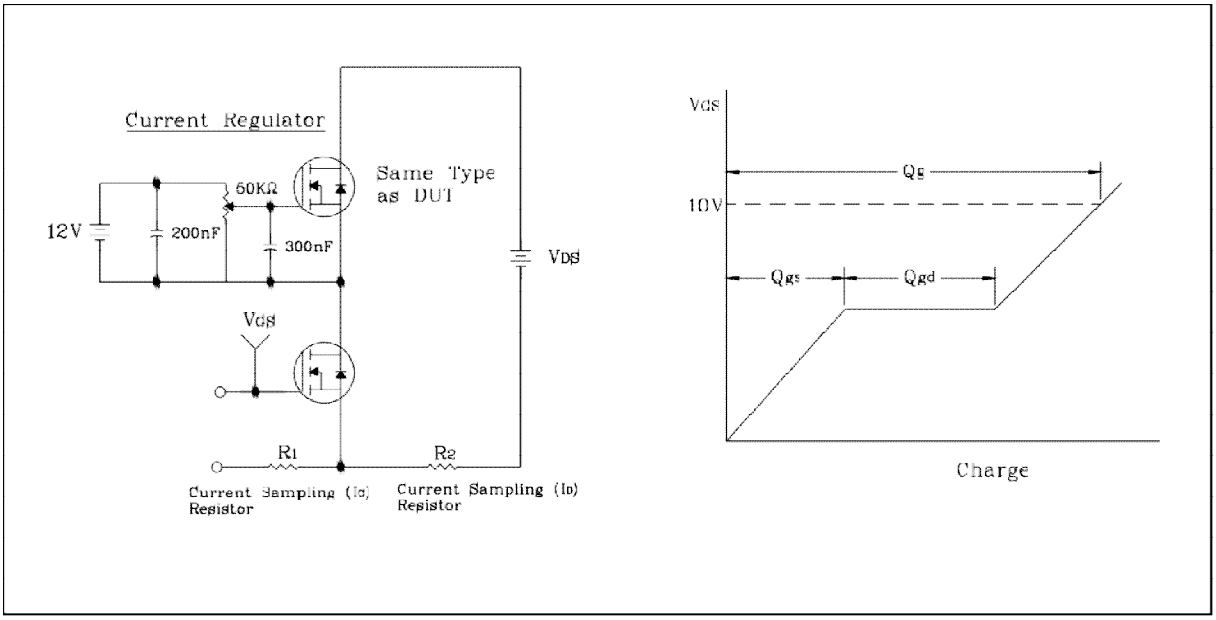


Fig. 13 Resistive Switching Test Circuit & Waveform

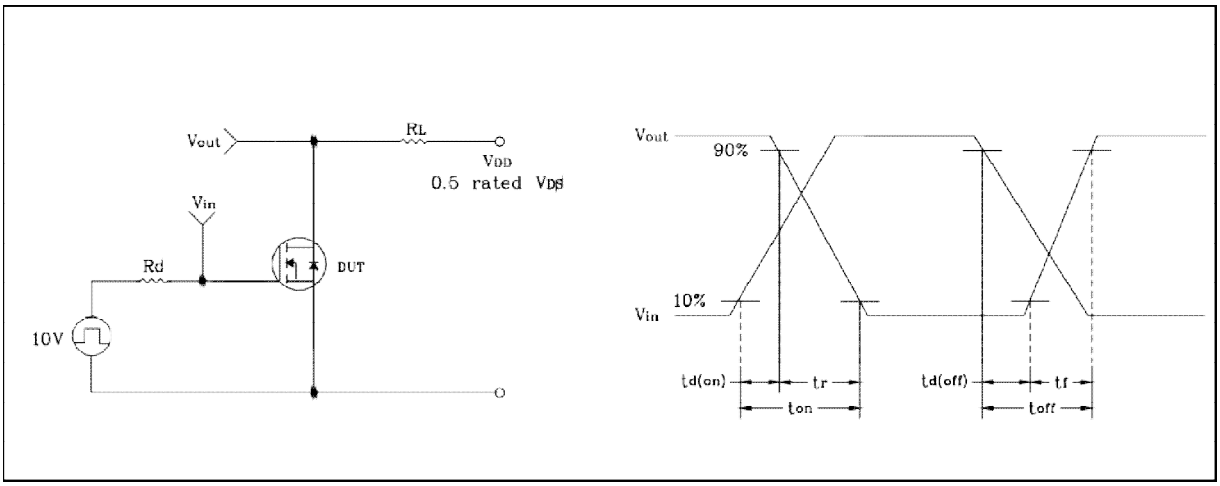


Fig. 14 E_{AS} Test Circuit & Waveform

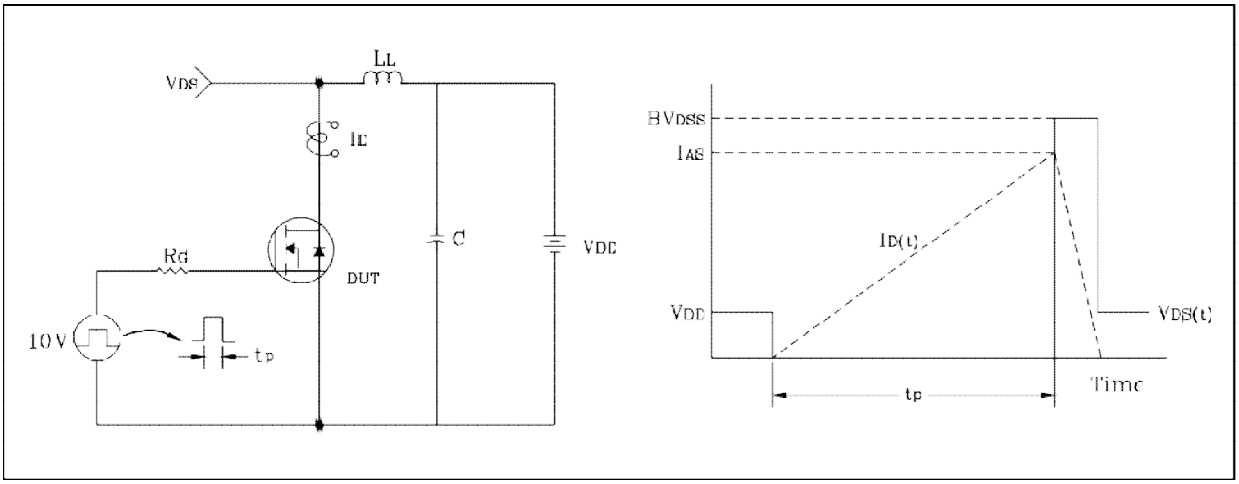
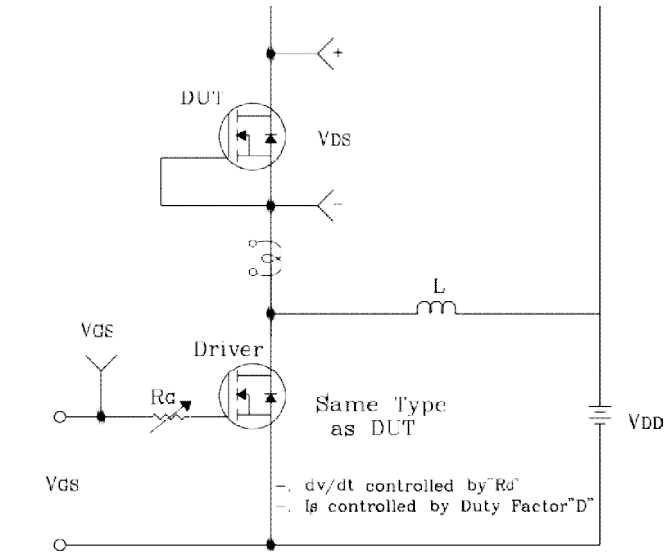
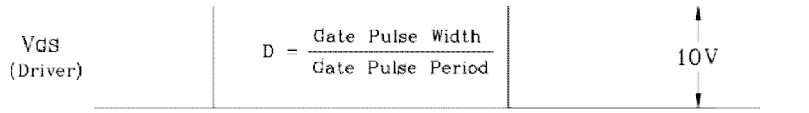
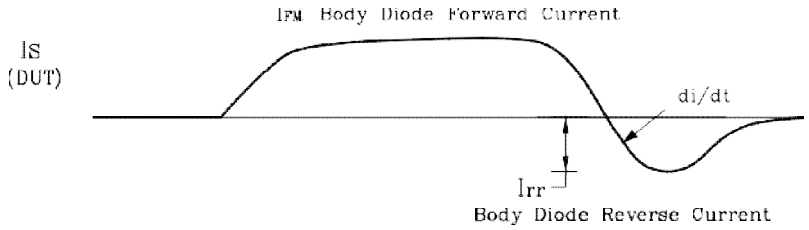
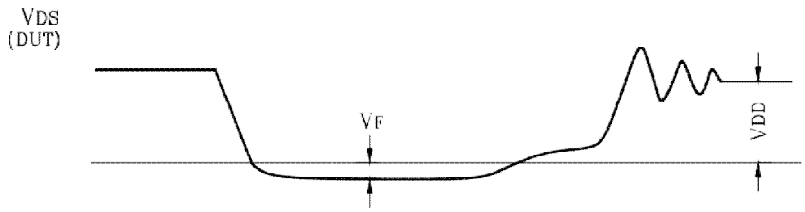


Fig. 15 Diode Reverse Recovery Time Test Circuit & Waveform



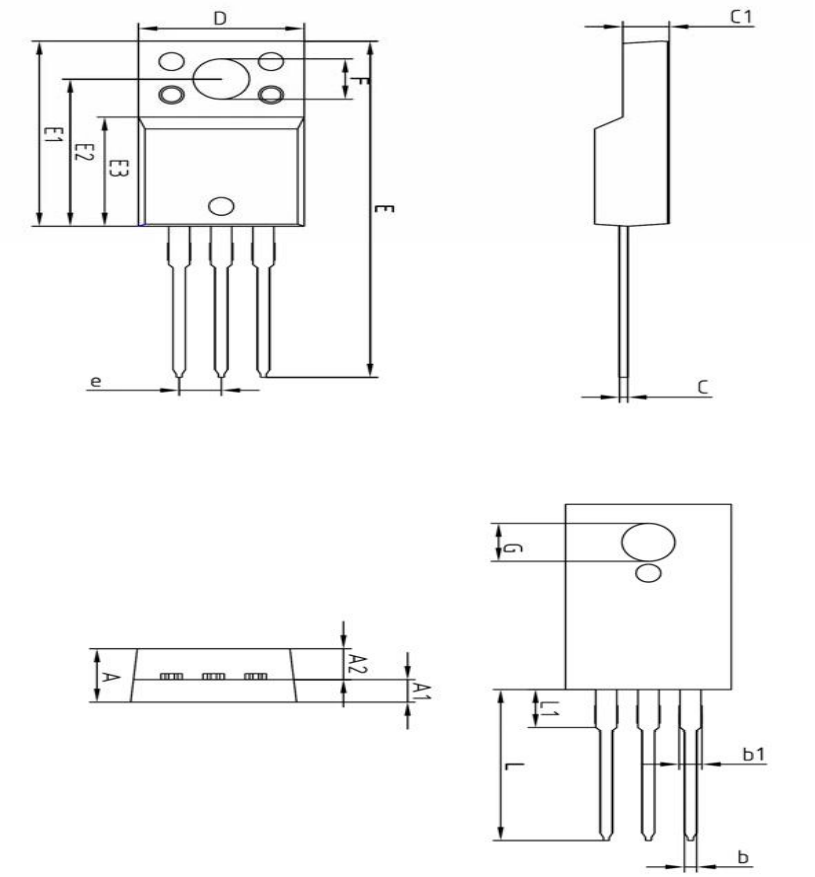




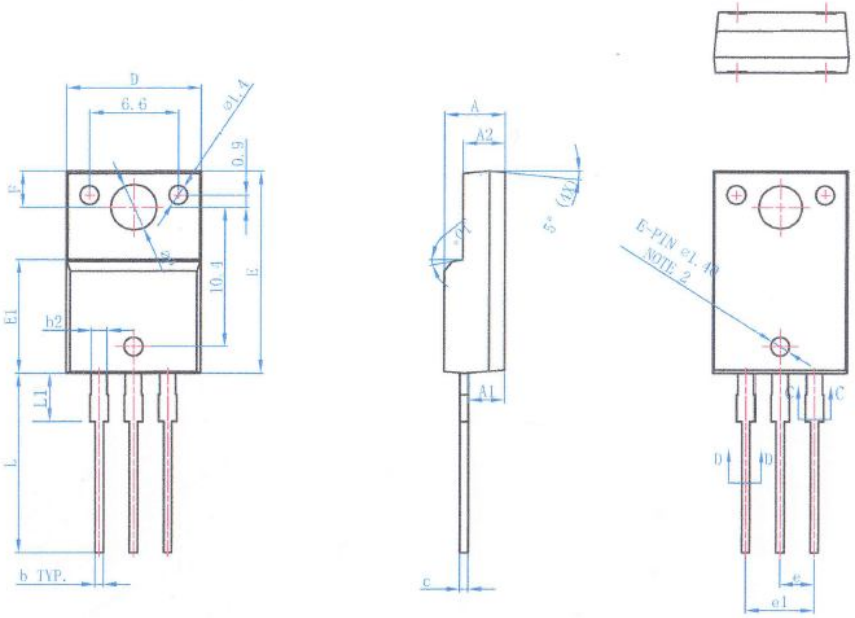


Outline Dimension

unit: mm

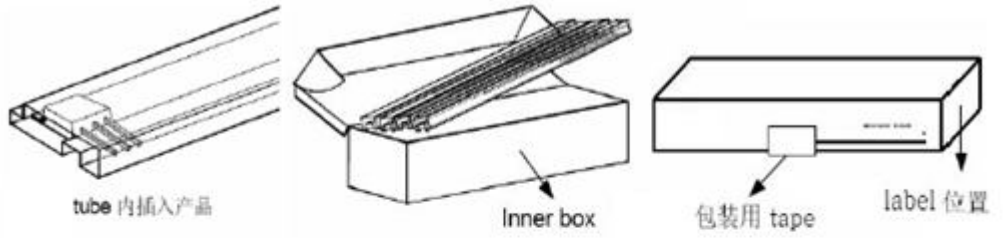


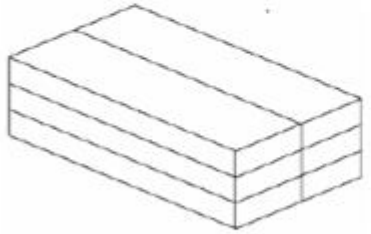
SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	–	–	4.60	
A1	2.45	2.50	2.55	
A2	1.95	2.00	2.05	
b	0.65	0.75	0.85	
b1	1.07	1.27	1.47	
C	0.40	0.50	0.60	
C1	2.70	2.80	2.90	
D	9.90	10.00	10.10	
E	28.00	–	28.60	
E1	15.50	15.60	15.70	
E2	12.30	12.40	12.50	
E3	9.15	9.20	9.25	
F	3.30	3.40	3.50	
G	3.10	3.20	3.30	
e	2.54 BSC			
L	12.40	–	13.00	
L1	3.46 BSC			



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	4.20	4.50	4.80	0.165	0.177	0.189
A1	2.50	—	2.90	0.098	—	0.114
A2	2.90	3.10	3.30	0.114	0.122	0.130
b	0.30	0.60	0.90	0.012	0.024	0.035
b1	0.30	—	0.90	0.012	—	0.035
b2	1.00	1.20	1.40	0.039	0.047	0.055
b3	1.00	—	1.40	0.039	—	0.055
c	—	0.60	—	—	0.024	—
D	9.90	10.00	10.10	0.390	0.394	0.398
E	14.80	15.10	15.40	0.583	0.594	0.606
E1	8.40	8.50	8.60	0.331	0.335	0.339
e	—	2.55BSC	—	—	0.100BSC	—
e1	—	5.10BSC	—	—	0.200BSC	—
F	2.55	2.70	2.85	—	0.106	0.112
L	13.00	13.40	13.80	0.512	0.528	0.543
L1	3.45	3.60	3.75	0.136	0.142	0.148
øP	2.90	3.20	3.50	0.114	0.126	0.138

Packing Spec





外部 BOX

PKG	个/TUBE	TUBE/内部 BOX	个/内部 BOX	个/外部 BOX
TO220F	50	20	1,000	6,000

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