

Features

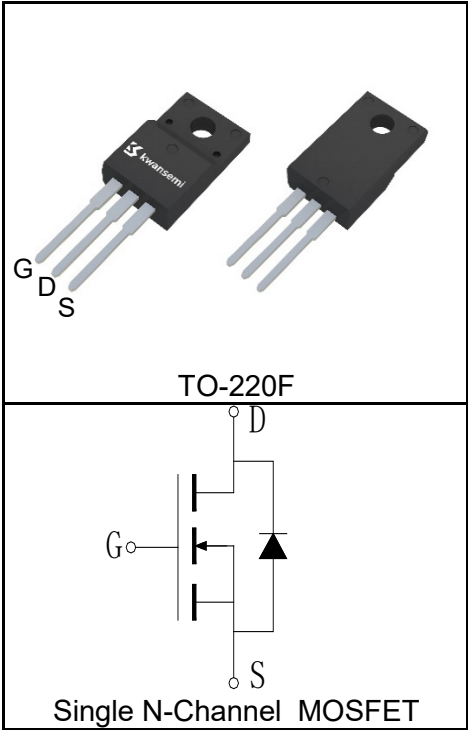
- 650V/8A,
 $R_{DS(ON)}=520m\Omega(Typ.)@V_{GS}=10V$
- Excellent $Q_G \times R_{DS(on)}$ product(FOM)
- SuperJunction Technology
- Low Switching Loss
- 100% Rg and Avalanche Tested

Applications

- LED Lighting
- Charger
- Adapter



Pin Description



Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (T _C =25°C Unless Otherwise Noted)				
V _{DSS}	Drain-Source Voltage		650	V
V _{GSS}	Gate-Source Voltage		±30	
T _{Jmax}	Maximum Junction Temperature		150	°C
T _J , T _{STG}	Operating and Storage Temperature Range		-55 to 150	°C
dv/dt	MOSFET dv/dt ruggedness, V _{DS} =0...480 V		50	V/ns
dv/dt	Reverse diode dv/dt, V _{DS} =0...480 V, I _{SD} ≤I _D		15	V/ns
V _{ISO}	Insulation Withstand Voltage (AC-RMS)		4000	V
I _S	Diode Continuous Forward Current	T _C =25°C	8	A
Mounted on Large Heat Sink				
I _{DP} ^①	Pulse Drain Current	T _C =25°C	28	A
I _D ^②	Continuous Drain Current(V _{GS} =10V)	T _C =25°C	8	A
		T _C =100°C	5	
P _D	Maximum Power Dissipation	T _C =25°C	27	W
		T _C =100°C	11	
R _{θJC}	Thermal Resistance-Junction to Case		4.5	°C/W
R _{θJA} ^③	Thermal Resistance-Junction to Ambient		62.5	°C/W
Drain-Source Avalanche Ratings				
E _{AS} ^④	Avalanche Energy, Single Pulsed		276	mJ

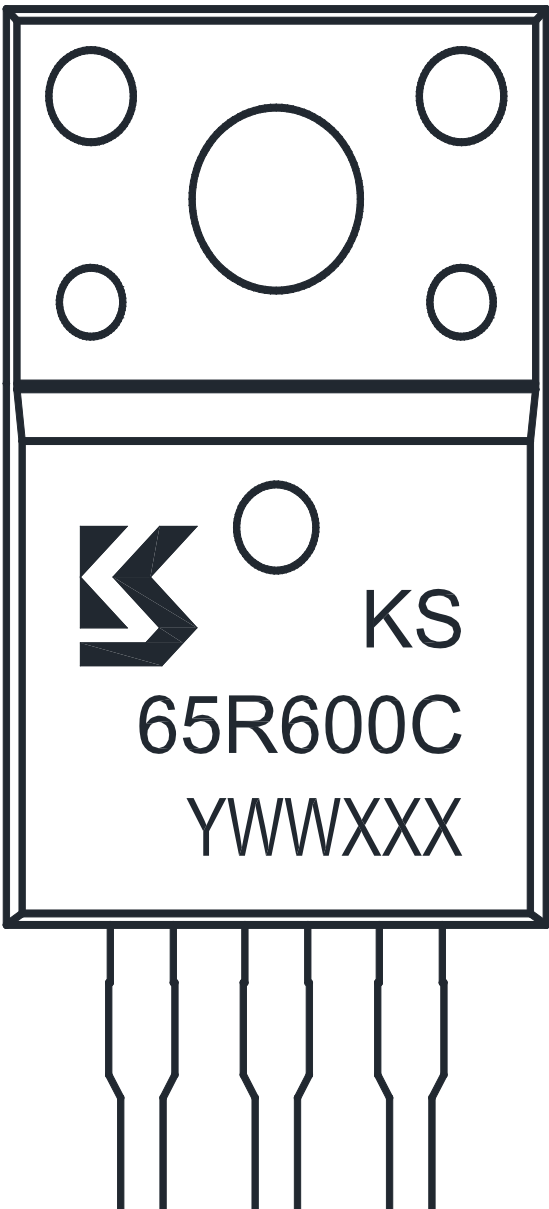
Electrical Characteristics ($T_C=25^{\circ}\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Test Condition	Rating			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	650			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =650V, V _{GS} =0V			1	μA
		T _J =125°C			30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	2.5	3	3.5	V
I _{GSS}	Gate Leakage Current	V _{GS} =±30V, V _{DS} =0V			±100	nA
R _{DS(ON)} ⑤	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =4A		520	600	mΩ
		V _{GS} =6V, I _{DS} =2A		560	700	mΩ
Diode Characteristics						
V _{SD} ⑤	Diode Forward Voltage	I _{SD} =8A, V _{GS} =0V		0.88	1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} =4A, dI _{SD} /dt=100A/μs		210		ns
Q _{rr}	Reverse Recovery Charge			1.3		μC
I _{rrm}	Peak Reverse Recovery Current			11		A
Dynamic Characteristics ⑥						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz		15		Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =325V, Frequency=1MHz		488		pF
C _{oss}	Output Capacitance			26		
C _{rss}	Reverse Transfer Capacitance			7		
t _{d(ON)}	Turn-on Delay Time	V _{DD} =325V, I _{DS} =4A, V _{GEN} =10V, R _G =3Ω		19		ns
t _r	Turn-on Rise Time			8		
t _{d(OFF)}	Turn-off Delay Time			39		
t _f	Turn-off Fall Time			12		
Gate Charge Characteristics ⑥						
Q _g	Total Gate Charge	V _{DS} =325V, V _{GS} =10V, I _{DS} =4A		16		nC
Q _{gs}	Gate-Source Charge			2.7		
Q _{gd}	Gate-Drain Charge			8.5		
V _{plateau}	Gate Plateau Voltage			5.3		V

- Notes:**
- ①Pulse width limited by safe operating area.
 - ②Calculated continuous current based on maximum allowable junction temperature.
 - ③When mounted on 1 inch square copper board, $t \leq 10\text{sec}$. The value in any given application depends on the user's specific board design.
 - ④Limited by T_{Jmax} , Starting $T_J = 25^{\circ}\text{C}$, $I_{ASmax} = 3.2A$, $L=54\text{mH}$, $V_{DD} = 48V$, $R_G = 25\Omega$, $V_{GS}=10V$. Part not recommended for use above this value. 100% Final Test at $I_{AS}=3.2A$, $L=27\text{mH}$.
 - ⑤Pulse test; Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
 - ⑥Guaranteed by design, not subject to production testing.

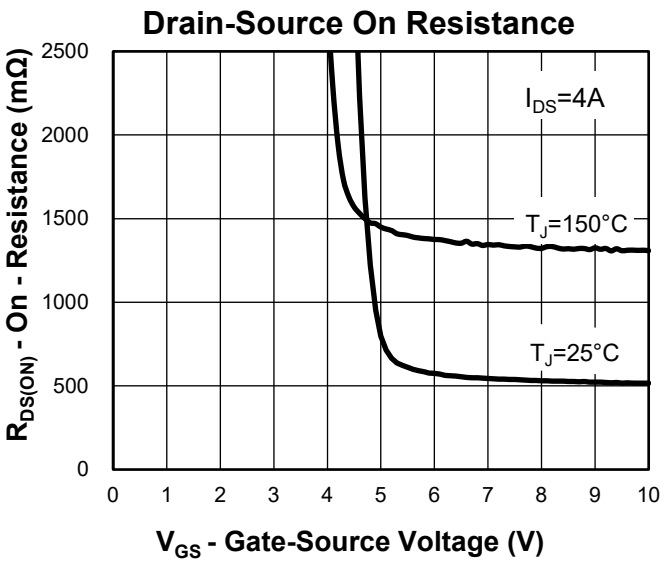
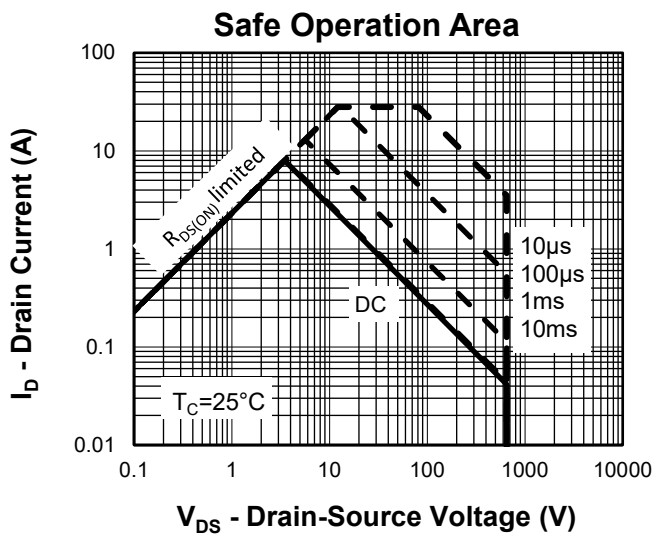
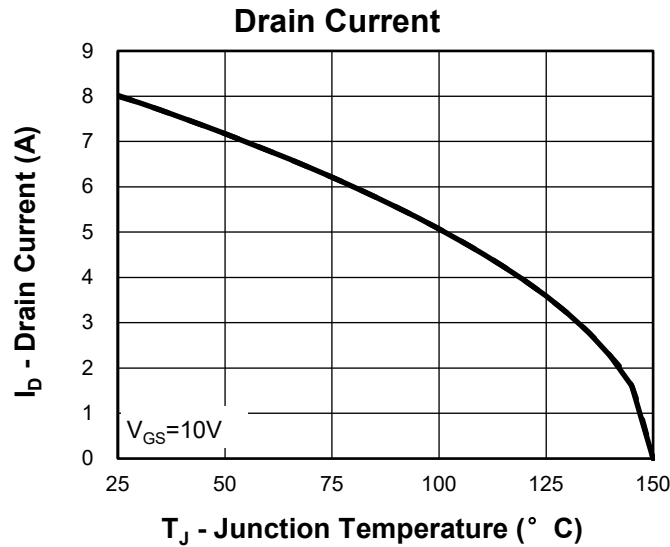
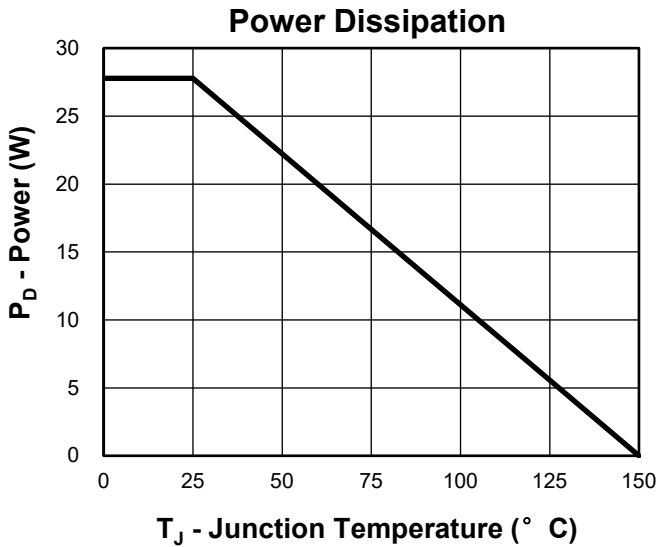
Ordering and Marking Information

Device	Package	Packaging	Quantity	Reel Size	Tape width
KS65R600FAJC1	TO-220F	Tube	50	-	-

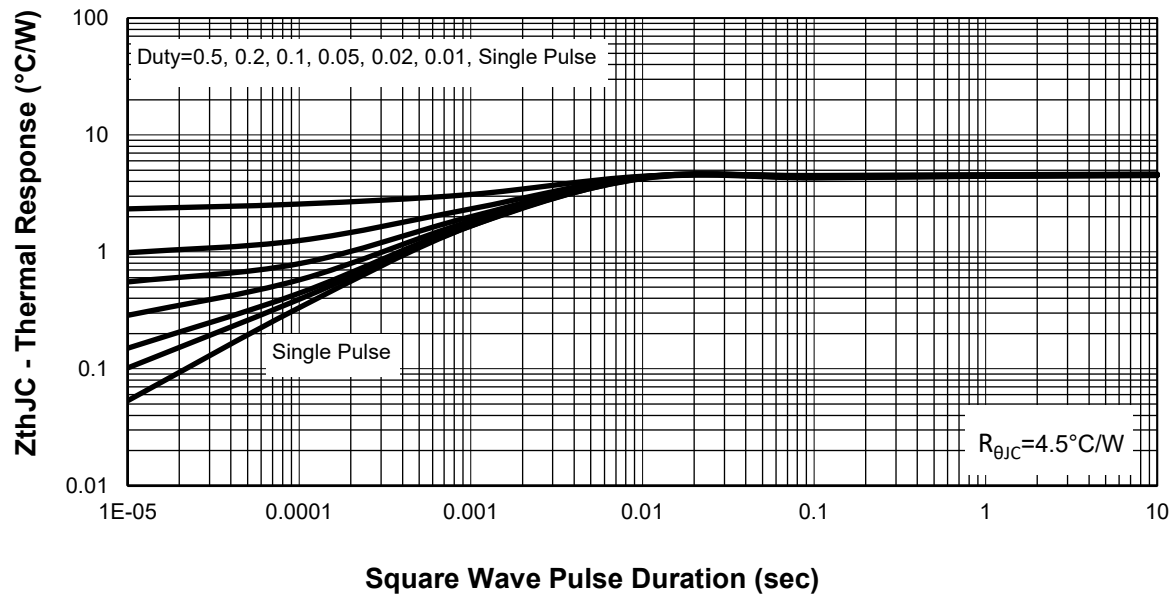


1st Line: Kwansemi LOGO, Kwansemi Code(KS)
2nd Line: Part Number(65R600C)
3rd Line: Lot Number(YWWXXX)

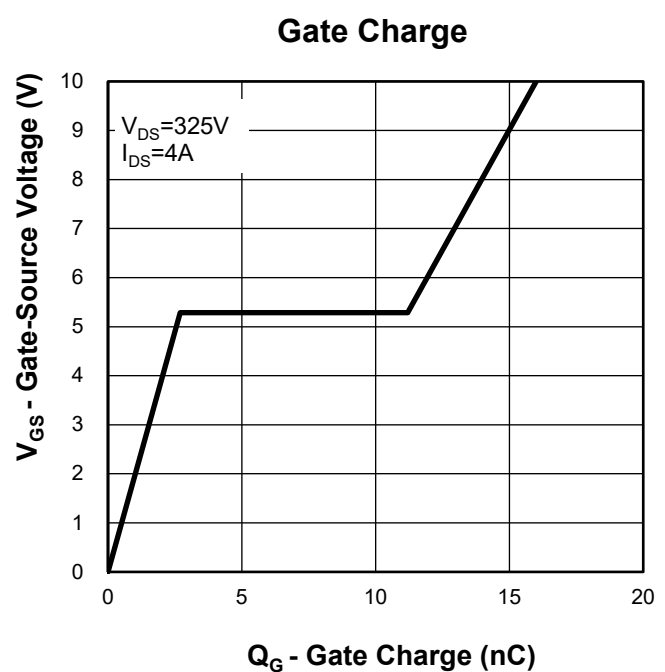
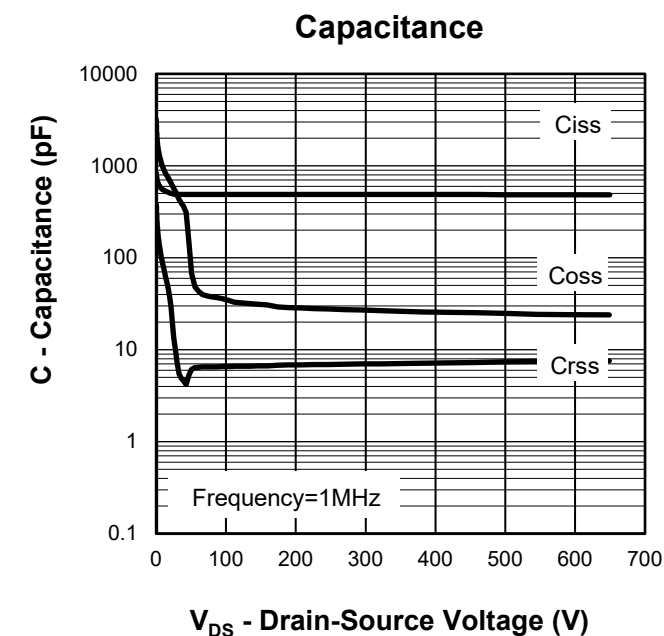
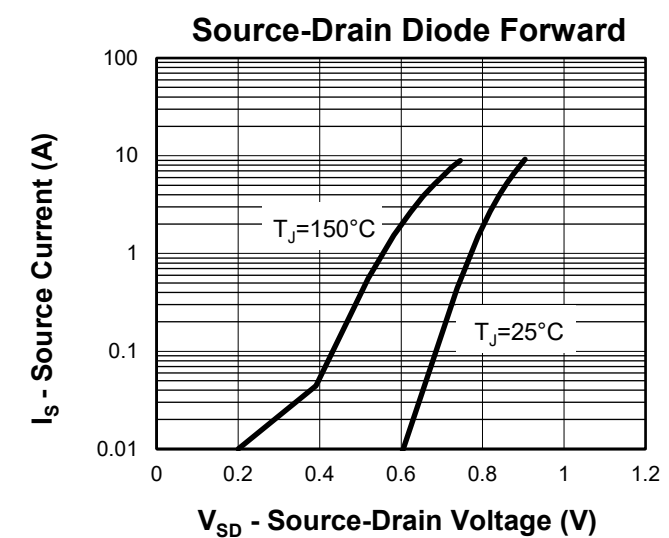
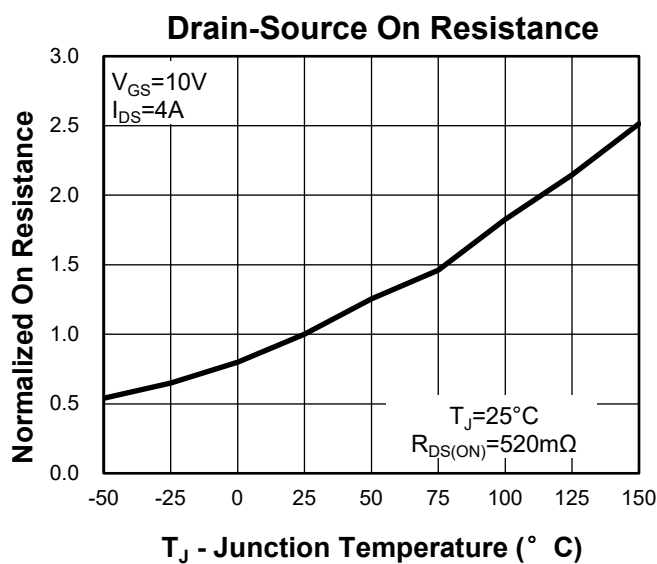
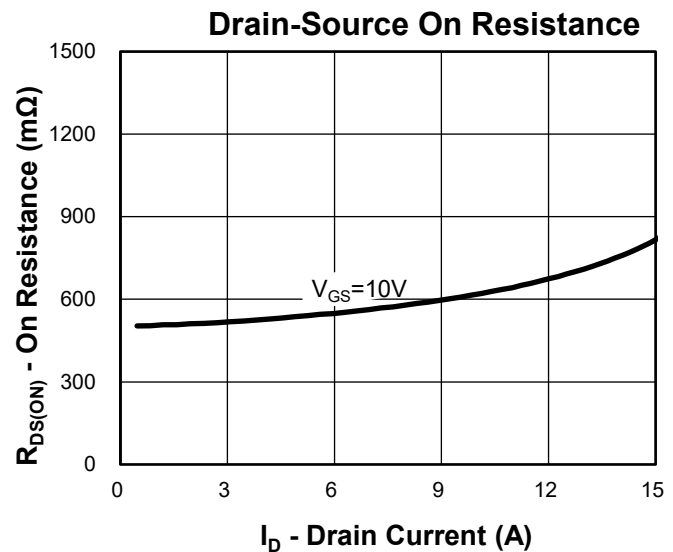
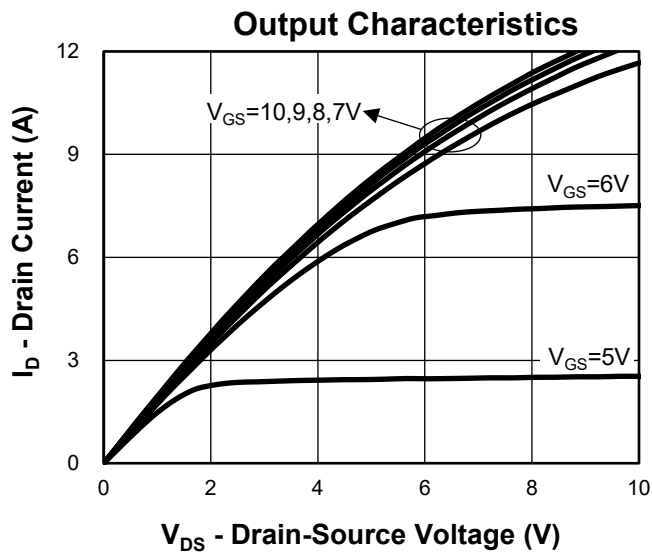
Typical Characteristics



Thermal Transient Impedance

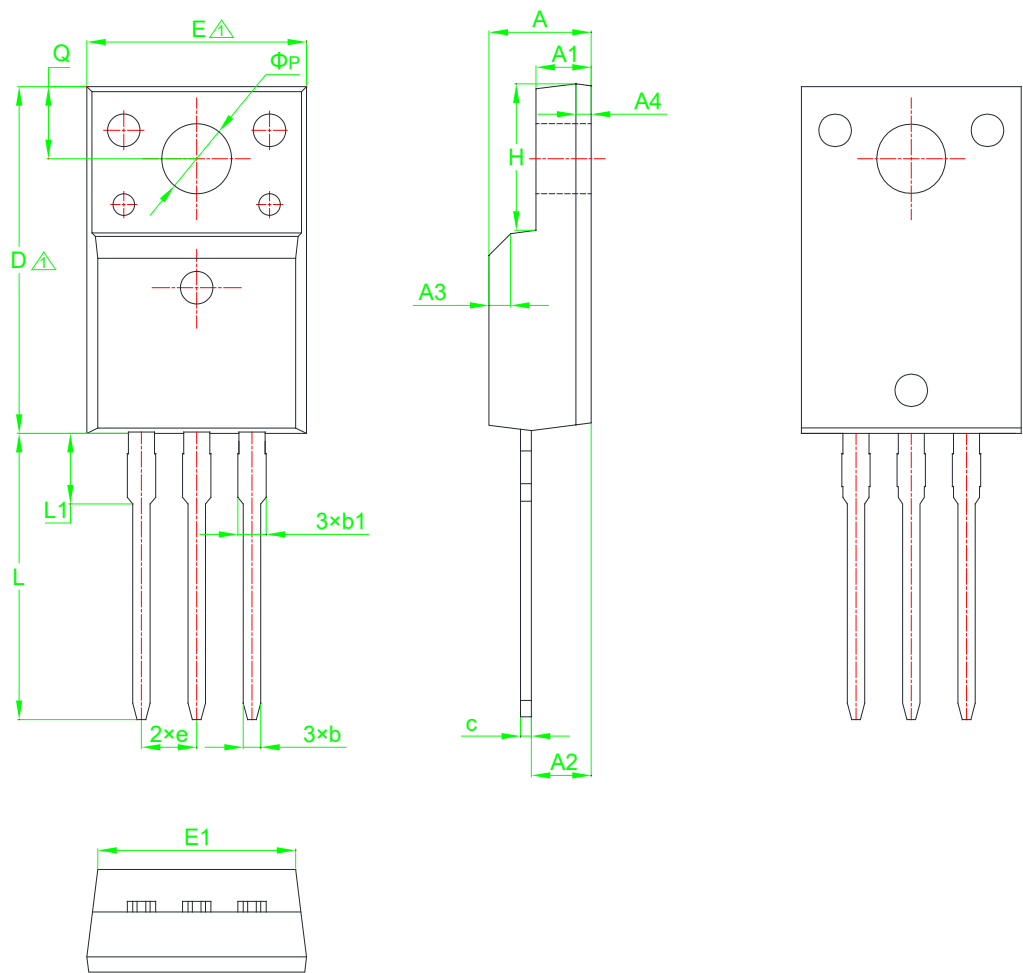


Typical Characteristics



Package Information

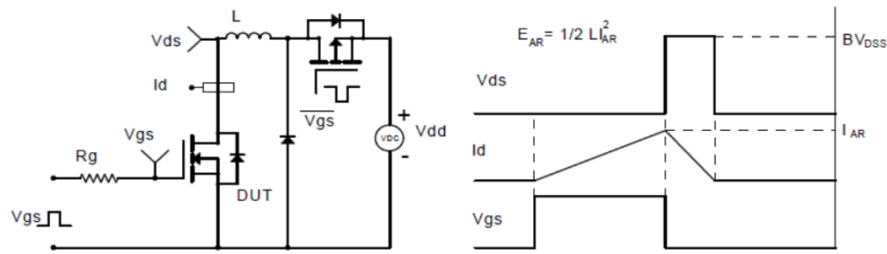
TO-220F



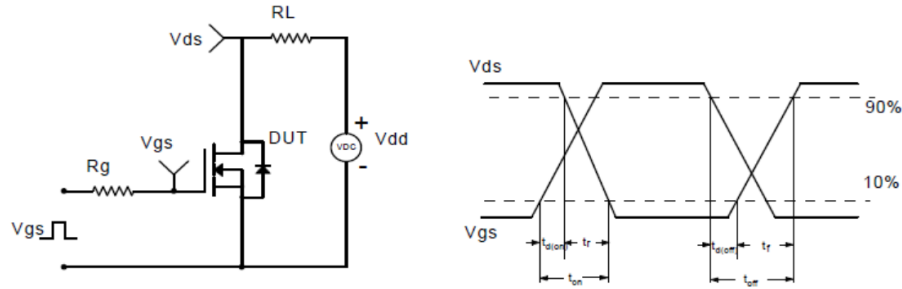
SYMBOL	MM			INCH			SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX		MIN	NOM	MAX	MIN	NOM	MAX
A	4.50	4.70	4.90	0.177	0.185	0.193	E	9.96	10.16	10.36	0.392	0.400	0.408
A1	2.34	2.54	2.74	0.092	0.100	0.108	E1	9.25	9.45	9.65	0.364	0.372	0.380
A2	2.55	2.75	2.95	0.100	0.108	0.116	e	2.54BSC			0.100BSC		
A3	1.00×45° REF			0.039×45° REF			H	6.20	*	6.90	0.244	*	0.272
A4	0.70REF			0.028REF			L	12.90	13.10	13.30	0.508	0.516	0.524
b	0.70	0.80	0.90	0.028	0.031	0.035	L1	3.15	3.30	3.45	0.124	0.130	0.136
b1	1.10	1.20	1.35	0.043	0.047	0.053	Q	3.20	3.30	3.40	0.126	0.130	0.134
c	0.35	0.50	0.65	0.014	0.020	0.026	ØP	3.08	3.18	3.28	0.121	0.125	0.129
D	15.70	15.90	16.10	0.618	0.626	0.634							

 Dimensions D and E do not include mold flash protrusions or gate burrs.

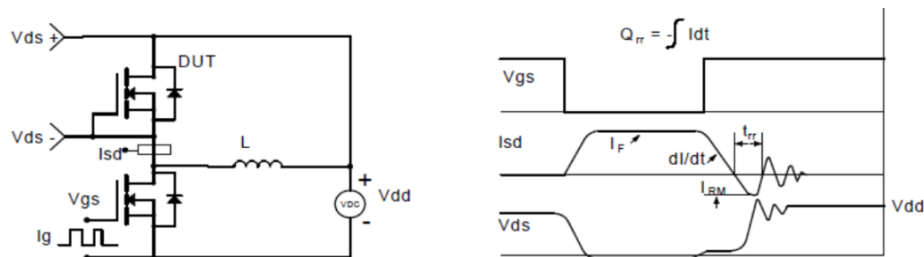
Avalanche Test Circuit and Waveforms



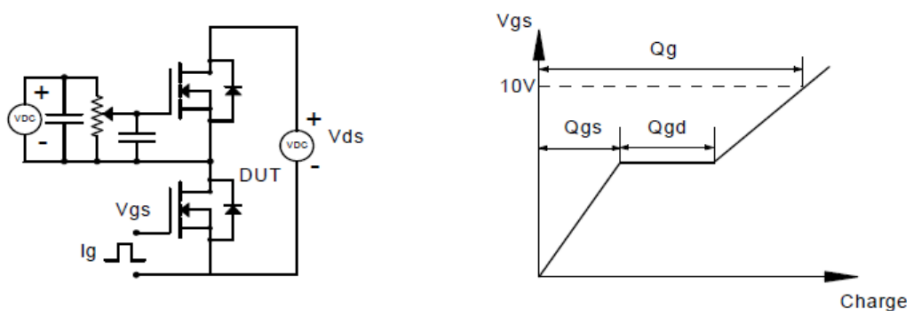
Switching Time Test Circuit and Waveforms



Diode Recovery Test Circuit and Waveforms



Gate Charge Test Circuit and Waveform



Customer Service

Kwansemi Semiconductor Co., Ltd

Email: Sales@kwansemi.com

Web: www.kwansemi.com

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