

Features

- 30V/24A,
 $R_{DS(ON)} = 12m\Omega(Typ.)@V_{GS}=10V$
 $R_{DS(ON)} = 19m\Omega(Typ.)@V_{GS}=4.5V$
- Low $R_{DS(ON)}$
- Super High Dense Cell Design
- Reliable and Rugged

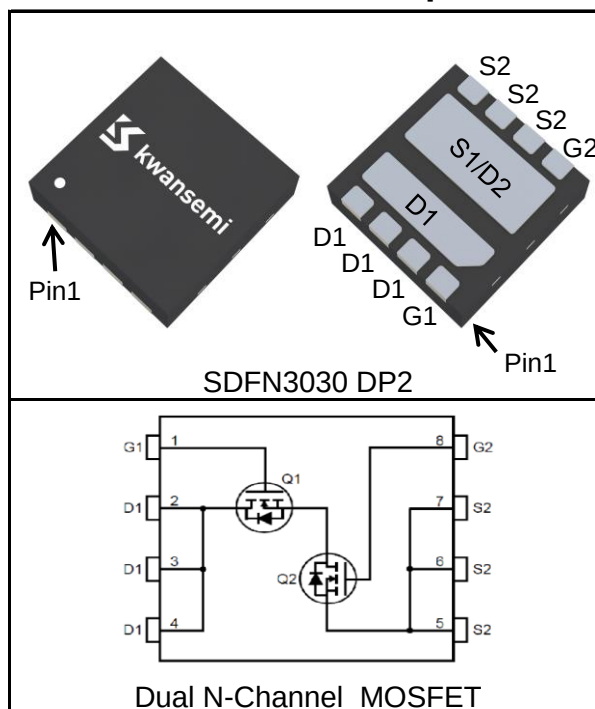
Applications

- DC/DC Converter



Halogen-Free

Pin Description



Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
Common Ratings ($T_C=25^\circ\text{C}$ Unless Otherwise Noted)			
V_{DSS}	Drain-Source Voltage	30	V
V_{GSS}	Gate-Source Voltage	± 20	
T_J	Maximum Junction Temperature	150	$^\circ\text{C}$
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to 150	$^\circ\text{C}$
I_S	Diode Continuous Forward Current	$T_C=25^\circ\text{C}$ 24	A
Mounted on Large Heat Sink			
$I_{DP}^{①}$	Pulse Drain Current	$T_C=25^\circ\text{C}$ 96	A
$I_D^{②}$	Continuous Drain Current@ $T_C(V_{GS}=10V)$	$T_C=25^\circ\text{C}$ 24	A
		$T_C=100^\circ\text{C}$ 15	
	Continuous Drain Current@ $T_A(V_{GS}=10V)^{③}$	$T_A=25^\circ\text{C}$ 10	
		$T_A=70^\circ\text{C}$ 8	
P_D	Maximum Power Dissipation@ T_C	$T_C=25^\circ\text{C}$ 13	W
		$T_C=100^\circ\text{C}$ 5	
	Maximum Power Dissipation@ $T_A^{③}$	$T_A=25^\circ\text{C}$ 2.8	
		$T_A=70^\circ\text{C}$ 1.8	

Symbol	Parameter	Rating	Unit
$R_{\theta JC}$	Thermal Resistance-Junction to Case	9.2	°C/W
$R_{\theta JA}^{③}$	Thermal Resistance-Junction to Ambient	45	°C/W
Drain-Source Avalanche Ratings			
$E_{AS}^{④}$	Avalanche Energy, Single Pulsed	25	mJ

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

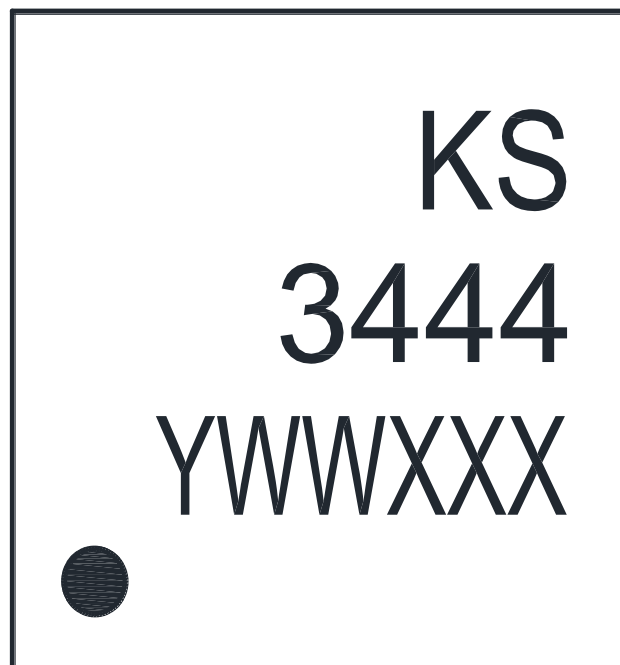
Symbol	Parameter	Test Condition	Rating			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	30			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V			1	μA
		T _J =125°C			30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	1.1	1.5	2.3	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V			±100	nA
R _{DS(ON)} ⑤	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =10A		12	15	mΩ
		V _{GS} =4.5V, I _{DS} =6A		19	25	mΩ
Diode Characteristics						
V _{SD} ⑤	Diode Forward Voltage	I _{SD} =10A, V _{GS} =0V		0.87	1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} =10A, dI _{SD} /dt=100A/μs		10		ns
Q _{rr}	Reverse Recovery Charge			19		nC
Dynamic Characteristics ⑥						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz		3		Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =15V, Frequency=1.0MHz		590		pF
C _{oss}	Output Capacitance			65		
C _{rss}	Reverse Transfer Capacitance			55		
t _{d(ON)}	Turn-on Delay Time	V _{DD} =15V, I _{DS} =10A, V _{GS} =10V, R _G =6Ω		9		ns
t _r	Turn-on Rise Time			13		
t _{d(OFF)}	Turn-off Delay Time			18		
t _f	Turn-off Fall Time			7		
Gate Charge Characteristics ⑧						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =10V, I _{DS} =10A		11		nC
Q _{gs}	Gate-Source Charge			1.8		
Q _{gd}	Gate-Drain Charge			2.5		

Notes:

- ①Pulse width limited by safe operating area.
- ②Calculated continuous current based on maximum allowable junction temperature. The package limitation current is 40A.
- ③When mounted on 1 inch square copper board, $t \leq 10\text{sec}$.
- ④Limited by $T_{j\text{max}}$, Starting $T_j = 25^\circ\text{C}$, $I_{AS\text{max}} = 10\text{A}$, $L = 0.5\text{mH}$, $V_{DD} = 20\text{V}$, $R_G = 25\Omega$, $V_{GS} = 10\text{V}$. Part not recommended for use above this value.
- ⑤Pulse test; Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
- ⑥Guaranteed by design, not subject to production testing.

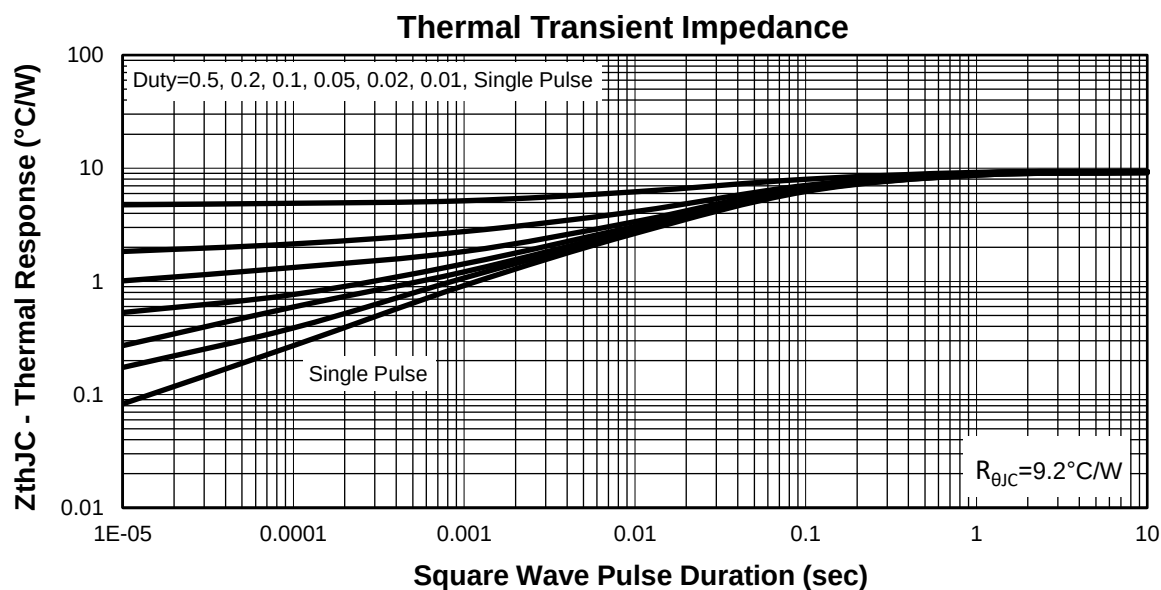
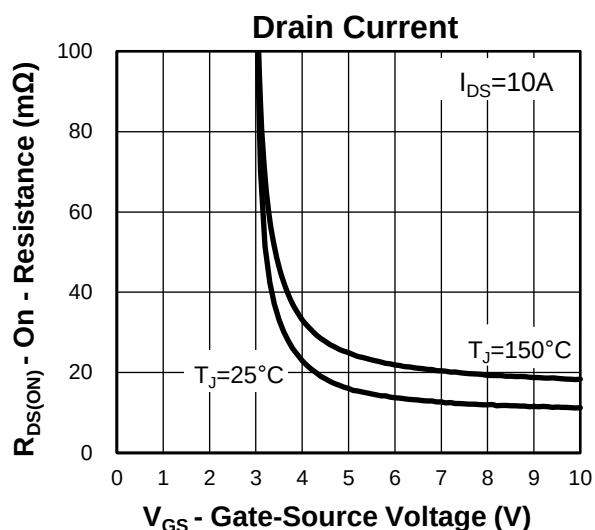
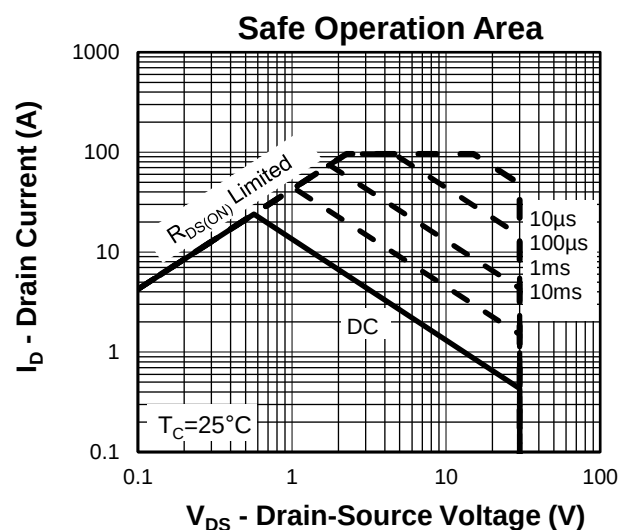
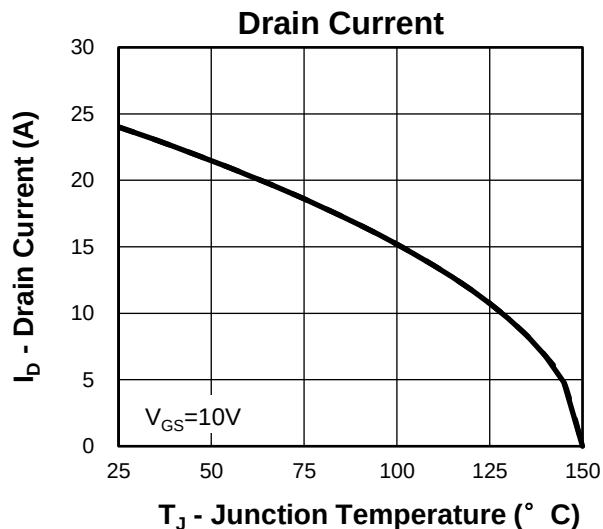
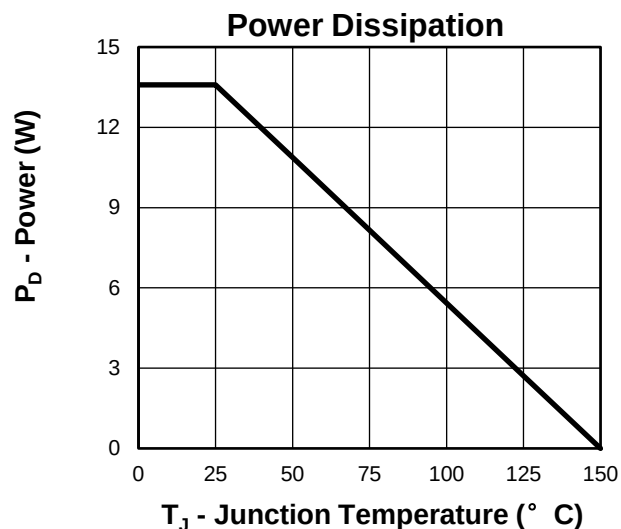
Ordering and Marking Information

Device	Package	Packaging	Quantity	Reel Size	Tape width
KS3444UA3	SDFN3030 DP2	Tape&Reel	5000	13"	12mm

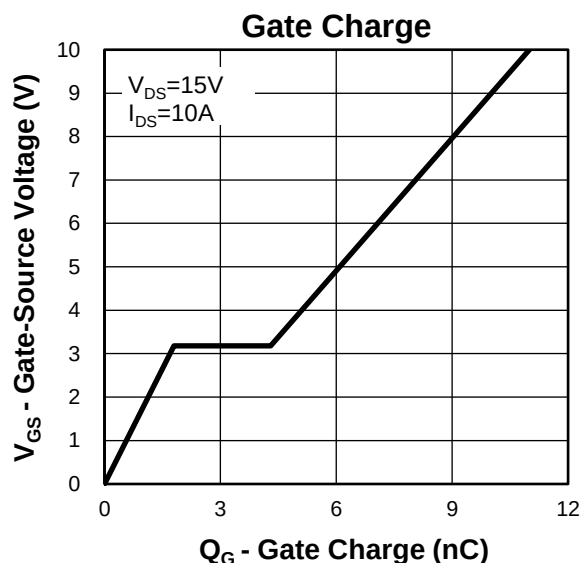
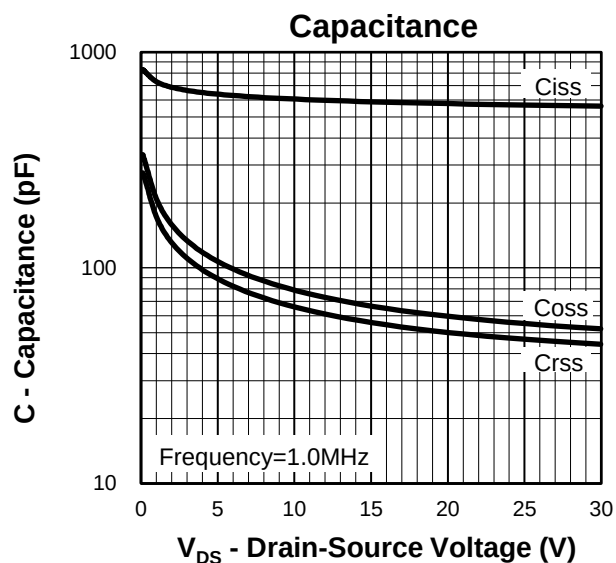
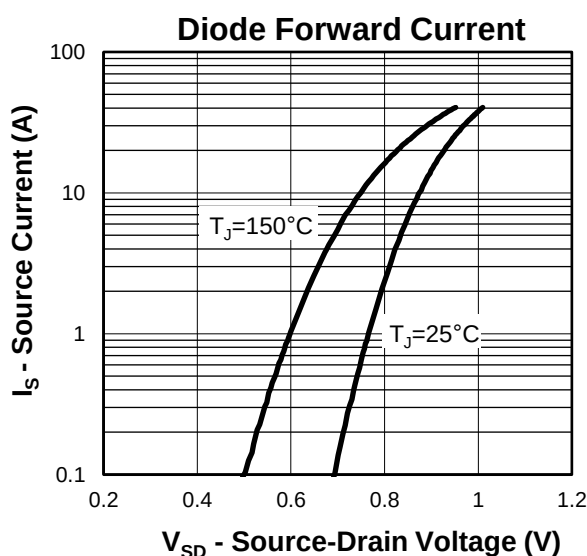
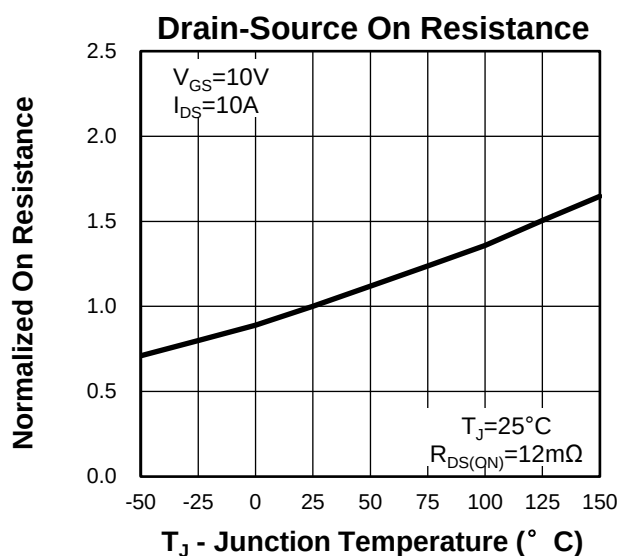
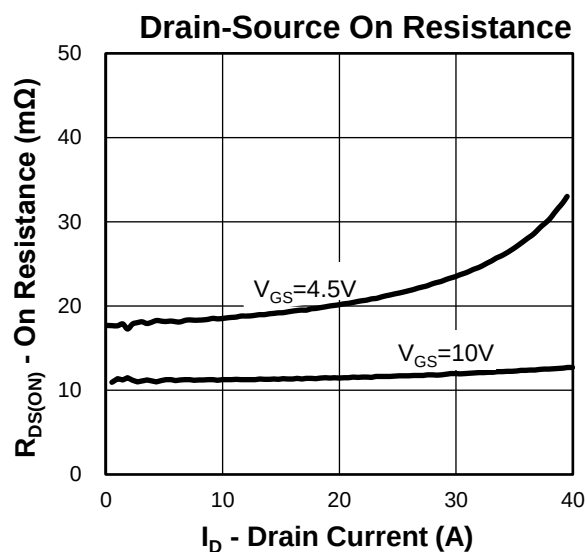
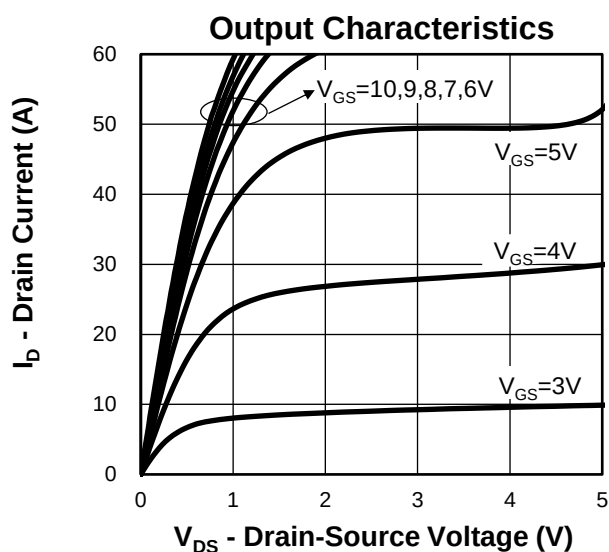


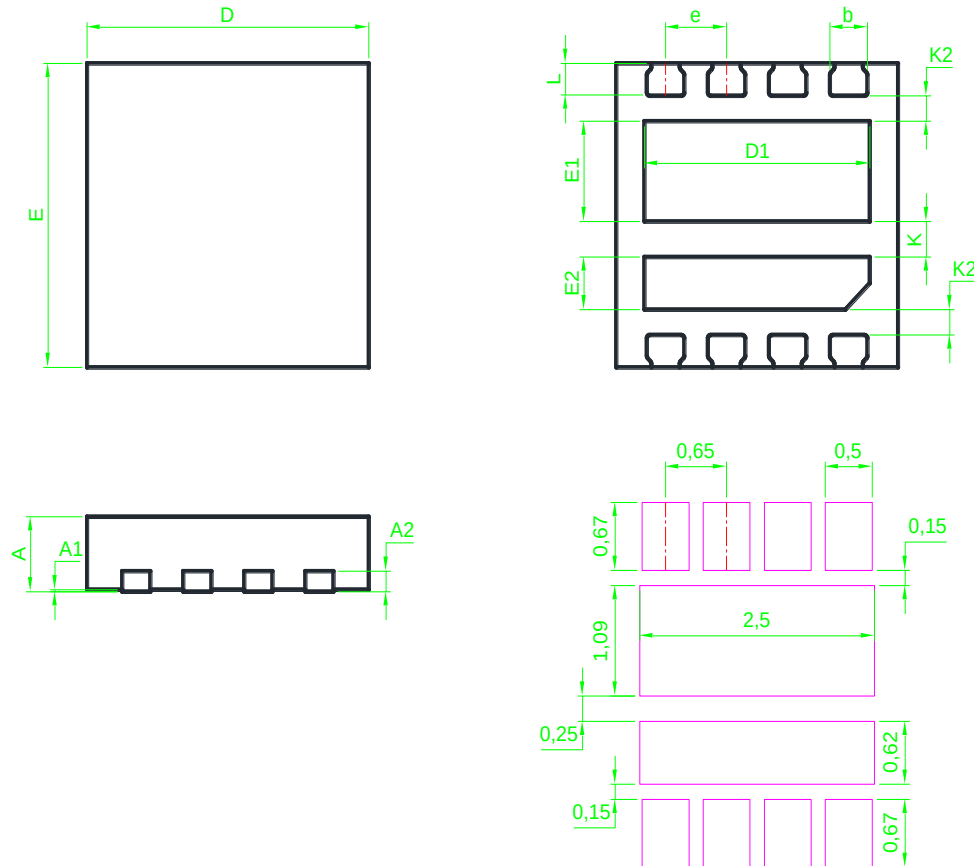
1st Line: Kwansemi Code(KS)
 2nd Line: Part Number(3444)
 3rd Line: Lot Number(YWWXXX)

Typical Characteristics



Typical Characteristics



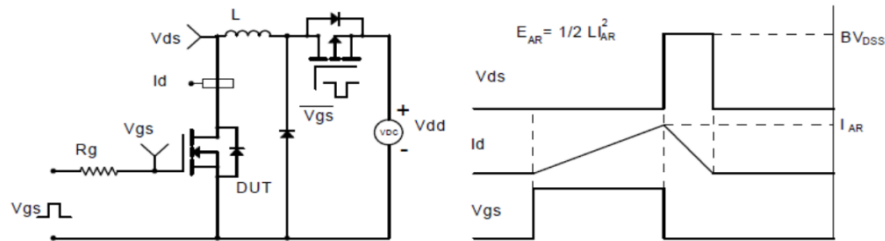
Package Information
**SDFN3030
DP2**


Land pattern
(Only for Reference)

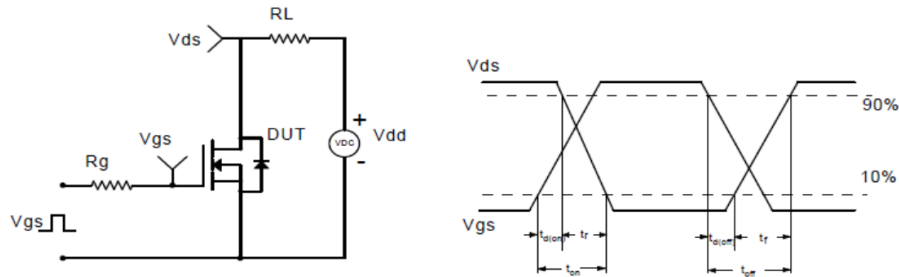
SYMBOL	MM			INCH			SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX		MIN	NOM	MAX	MIN	NOM	MAX
A	0.70	0.75	0.80	0.028	0.030	0.031	E	2.90	3.00	3.10	0.114	0.118	0.122
A1	0.00	0.02	0.05	0.000	0.001	0.002	E1	0.89	0.99	1.09	0.035	0.039	0.043
A2	0.203REF			0.008REF			E2	0.42	0.52	0.62	0.017	0.020	0.024
b	0.35	0.40	0.45	0.014	0.016	0.018	K	0.35REF			0.014REF		
D	2.90	3.00	3.10	0.114	0.118	0.122	K2	0.25REF			0.010REF		
D1	2.30	2.40	2.50	0.091	0.094	0.098	L	0.22	0.32	0.42	0.009	0.013	0.017
e	0.65BSC			0.026BSC									

Note: Dimensions do not inclusive burrs and mold flash.

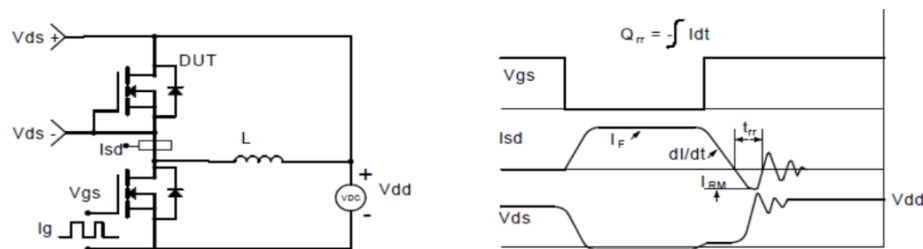
Avalanche Test Circuit and Waveforms



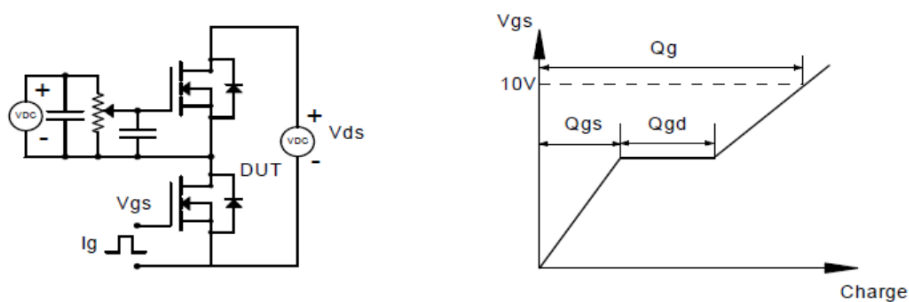
Switching Time Test Circuit and Waveforms



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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