

Features

- 30V/45A,
 $R_{DS(ON)} = 6m\Omega(Typ.)@V_{GS}=10V$
 $R_{DS(ON)} = 8m\Omega(Typ.)@V_{GS}=4.5V$
- Low $R_{DS(ON)}$
- Super High Dense Cell Design
- Fast Switching Speed
- 100% avalanche tested

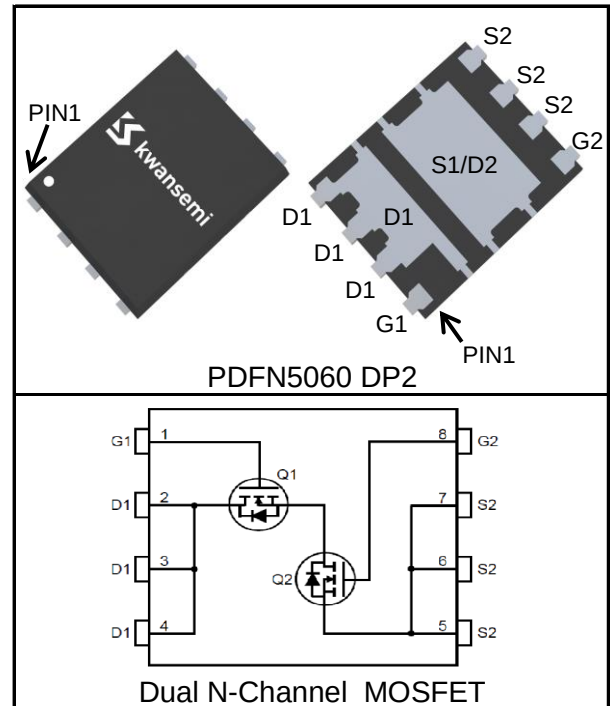
Applications

- Switching Application Systems
- DC/DC Converter



Halogen-Free

Pin Description



Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (T _C =25°C Unless Otherwise Noted)				
V _{DSS}	Drain-Source Voltage		30	V
V _{GSS}	Gate-Source Voltage		±20	
T _J	Maximum Junction Temperature		150	°C
T _J ,T _{STG}	Operating and Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current	T _C =25°C	45	A
Mounted on Large Heat Sink				
I _{DP} ^①	Pulse Drain Current	T _C =25°C	180	A
I _D ^②	Continuous Drain Current@T _C (V _{GS} =10V)	T _C =25°C	45	A
		T _C =100°C	28	
	Continuous Drain Current@T _A (V _{GS} =10V) ^③	T _A =25°C	15	
		T _A =70°C	12	
P _D	Maximum Power Dissipation@T _C	T _C =25°C	26	W
		T _C =100°C	10	
	Maximum Power Dissipation@T _A ^③	T _A =25°C	3.1	
		T _A =70°C	2	

Symbol	Parameter	Rating	Unit
$R_{\theta JC}$	Thermal Resistance-Junction to Case	4.8	$^{\circ}\text{C/W}$
$R_{\theta JA}^{(3)}$	Thermal Resistance-Junction to Ambient	40	$^{\circ}\text{C/W}$
Drain-Source Avalanche Ratings			
$E_{AS}^{(4)}$	Avalanche Energy, Single Pulsed	81	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	1.2	1.7	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} =20A		6	8	mΩ
		V _{GS} =4.5V, I _{DS} =16A		8	11	mΩ
Diode Characteristics						
V _{SD} ⑤	Diode Forward Voltage	I _{SD} =20A, V _{GS} =0V		0.85	1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} =20A, dI _{SD} /dt=100A/μs		23		ns
Q _{rr}	Reverse Recovery Charge			32		nC
Dynamic Characteristics ⑥						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz		3.4		Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =15V, Frequency=1.0MHz		1095		pF
C _{oss}	Output Capacitance			180		
C _{rss}	Reverse Transfer Capacitance			135		
t _{d(ON)}	Turn-on Delay Time	V _{DD} =15V, I _{DS} =20A, V _{GS} =10V, R _G =6Ω		12		ns
t _r	Turn-on Rise Time			18		
t _{d(OFF)}	Turn-off Delay Time			35		
t _f	Turn-off Fall Time			10		
Gate Charge Characteristics ⑥						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =10V, I _{DS} =20A		21		nC
Q _{gs}	Gate-Source Charge			3		
Q _{gd}	Gate-Drain Charge			4.6		

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 $T_{j\text{max}}$, Starting $T_j = 25^\circ\text{C}$, $I_{AS\text{max}} = 18\text{A}$, $L = 0.5\text{mH}$, $V_{DD} = 10\text{V}$, $R_G = 25\Omega$, $V_{GS} = 4.5\text{V}$. 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
KS3418NA2	PDFN5060 DP2	Tape&Reel	5000	13"	12mm

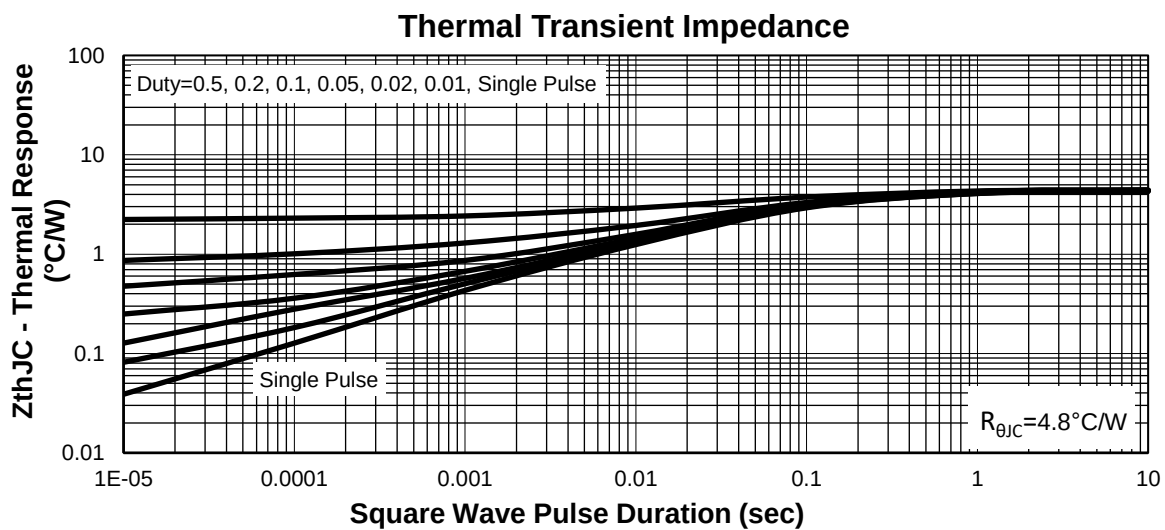
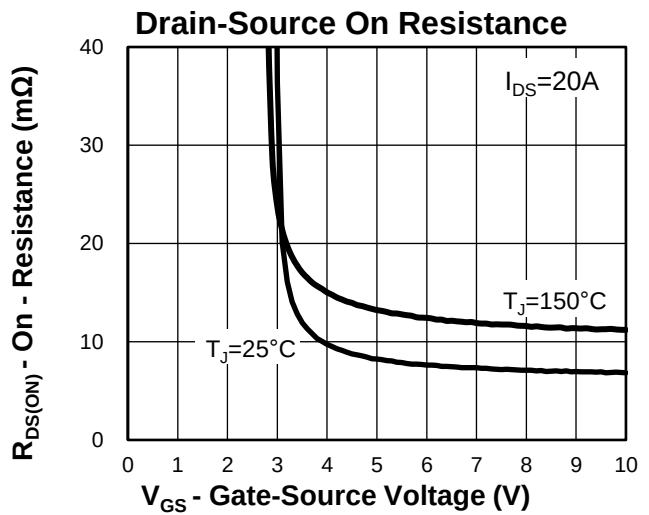
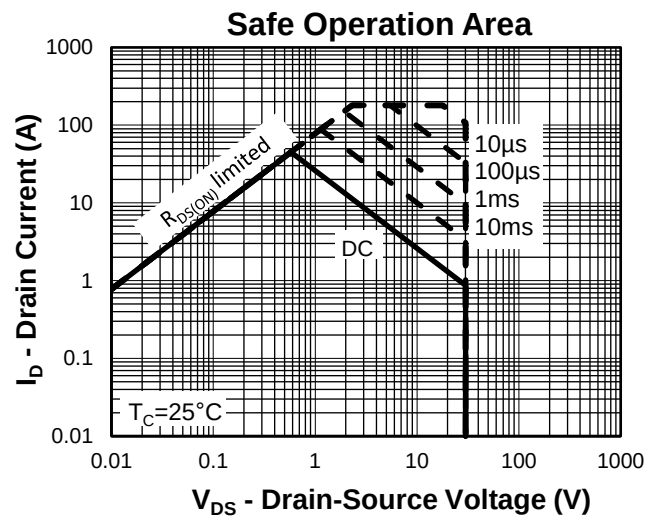
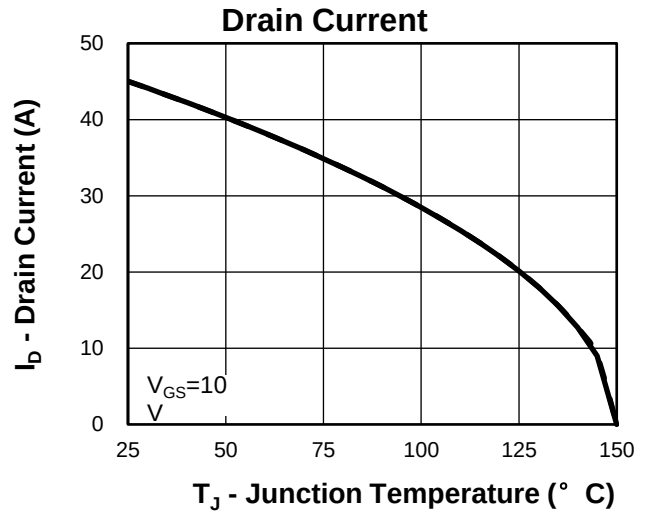
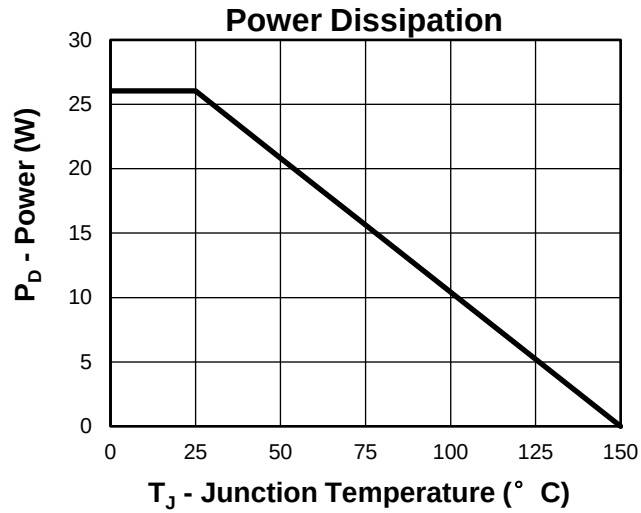


1st Line: Kwansemi LOGO, Kwansemi Code(KS)

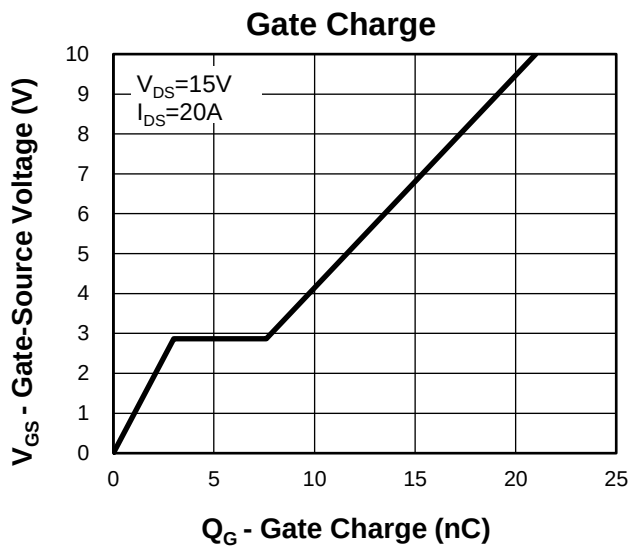
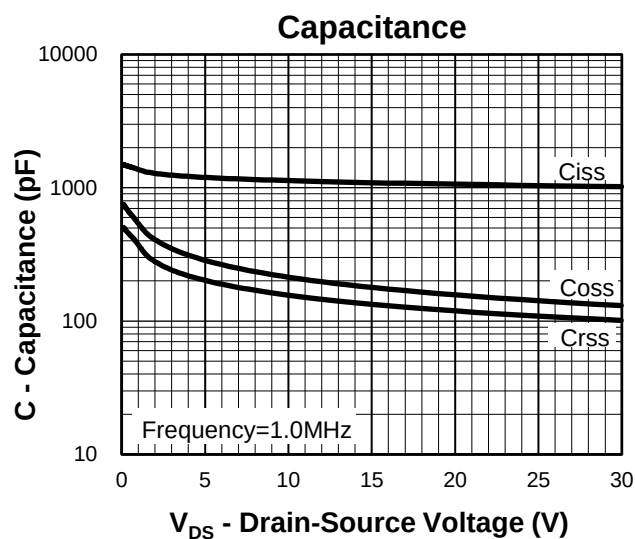
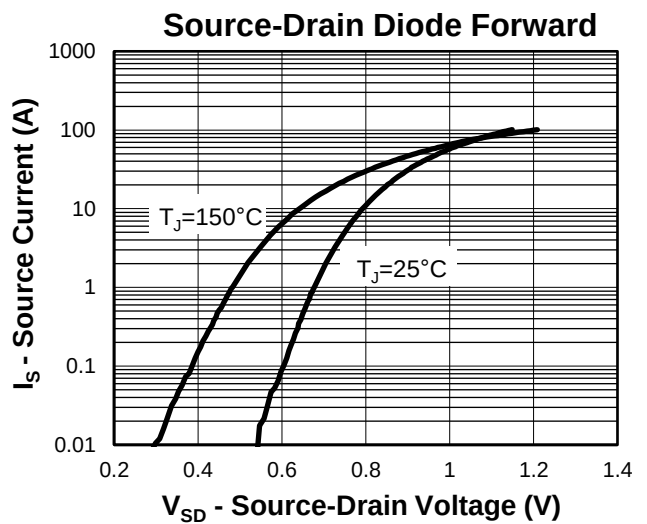
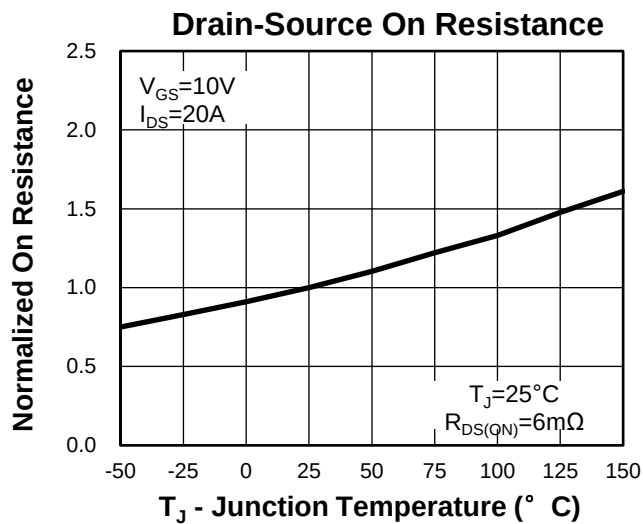
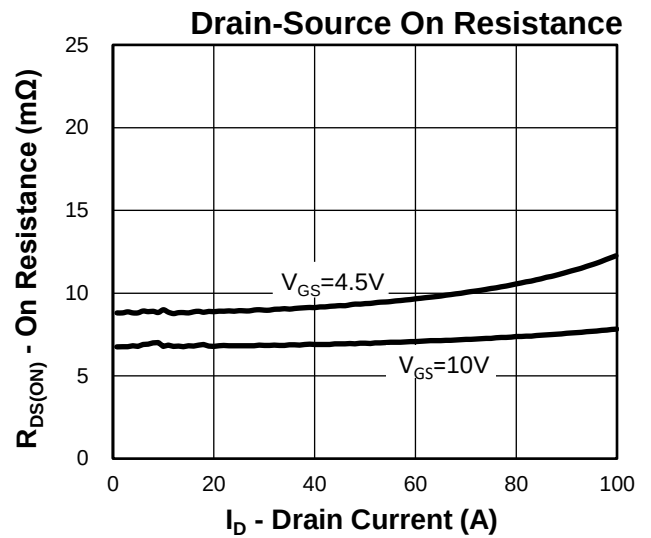
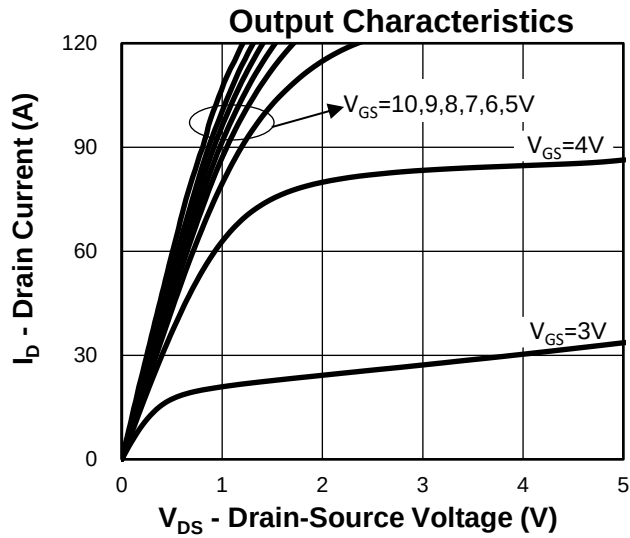
2nd Line: Part Number(3418)

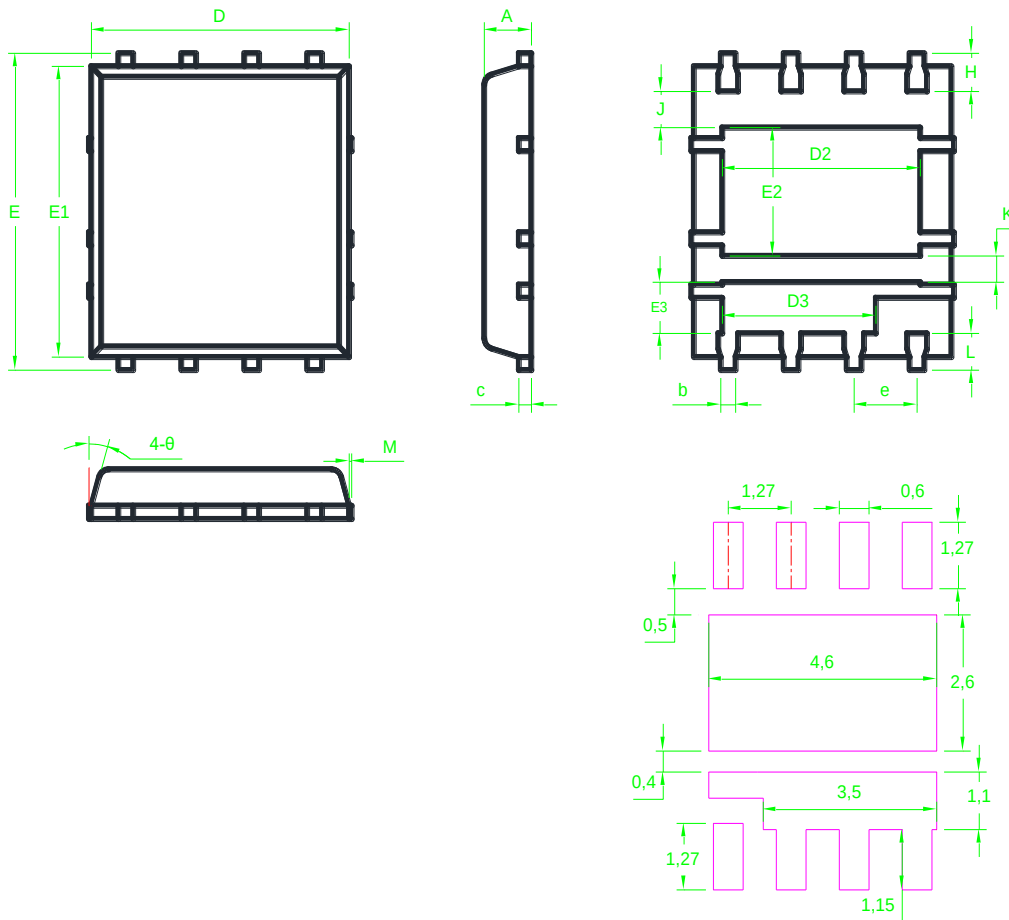
3rd Line: Lot Number(YWWXXX)

Typical Characteristics



Typical Characteristics



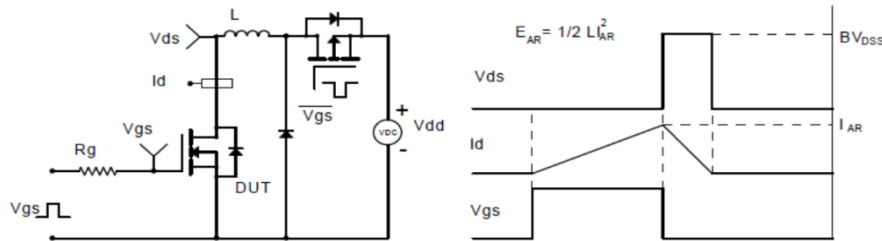
Package Information
PDFN5060 DP2


Land pattern
(Only for reference)

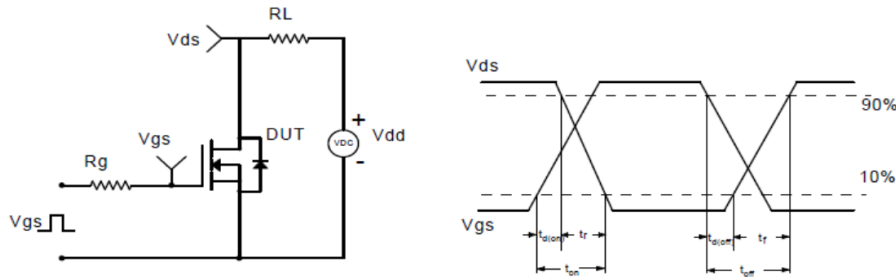
SYMBOL	MM			INCH			SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX		MIN	NOM	MAX	MIN	NOM	MAX
A	0.90	0.95	1.00	0.035	0.037	0.039	E2	2.35	2.45	2.55	0.093	0.096	0.100
b	0.25	0.30	0.35	0.010	0.012	0.014	E3	0.88	0.98	1.08	0.035	0.039	0.043
c	0.20	0.25	0.30	0.008	0.010	0.012	H	0.63	0.73	0.83	0.025	0.029	0.033
D	5.10	5.20	5.30	0.201	0.205	0.209	J	0.60	0.70	0.80	0.024	0.028	0.031
D2	3.80	4.00	4.20	0.150	0.157	0.165	K	0.40	0.50	0.60	0.016	0.020	0.024
D3	3.00	3.10	3.20	0.118	0.122	0.126	L	0.60	0.70	0.80	0.024	0.028	0.031
e	1.22	1.27	1.32	0.048	0.050	0.052	M	*	*	0.12	*	*	0.005
E	5.95	6.05	6.15	0.234	0.238	0.242	θ	0°	*	12°	0°	*	12°
E1	5.40	5.55	5.70	0.213	0.219	0.224							

Note: Dimensions do not inclusive burrs and mold flash.

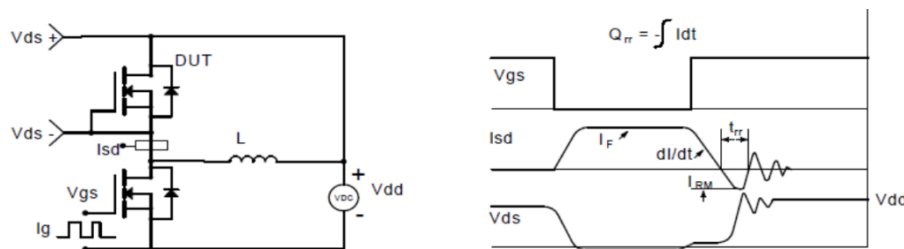
Avalanche Test Circuit and Waveforms



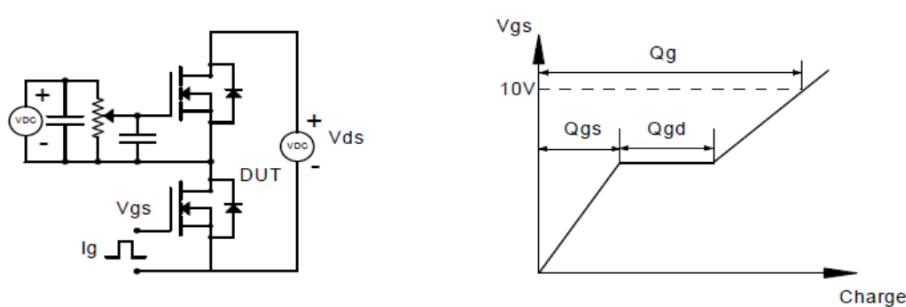
Switching Time Test Circuit and Waveforms



Diode Recovery Test Circuit and Waveforms



Gate Charge Test Circuit and Waveform



Customer Service

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