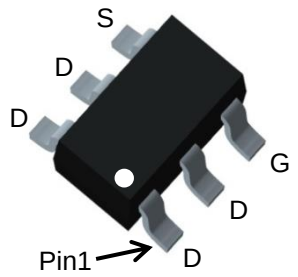
KS3240EA6

Single N-Channel Advanced Power MOSFET

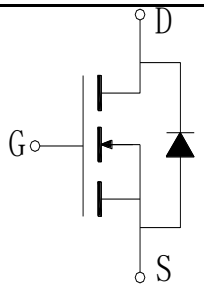
Features

- 30V/7A,
  $R_{DS(ON)}$ =16mΩ(Typ.)@V_{GS}=10V
  $R_{DS(ON)}$ =20mΩ(Typ.)@V_{GS}=4.5V
- Low $R_{DS(ON)}$
- Super High Dense Cell Design
- Reliable and Rugged

Pin Description



SOT23-6L



Single N-Channel MOSFET

Applications

- Load Switch

RoHS Pb HF Halogen-Free

Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (T_A=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_{STG}	Storage Temperature Range		-55 to 150	°C
I_S	Diode Continuous Forward Current	T_A=25°C	1.6	A
Mounted on Large Heat Sink				
I_{DP} ①	300μs Pulse Drain Current Tested	T_A=25°C	28	A
I_D ②	Continuous Drain Current(V_{GS}=10V)	T_A=25°C	7	A
		T_A=70°C	5.6	
P_D	Maximum Power Dissipation	T_A=25°C	1.3	W
		T_A=70°C	0.8	
$R_{\theta JL}$	Thermal Resistance-Junction to Lead		60	°C/W
$R_{\theta JA}$ ③	Thermal Resistance-Junction to Ambient		100	°C/W
Drain-Source Avalanche Ratings				
E_{AS} ④	Avalanche Energy, Single Pulsed		9	mJ

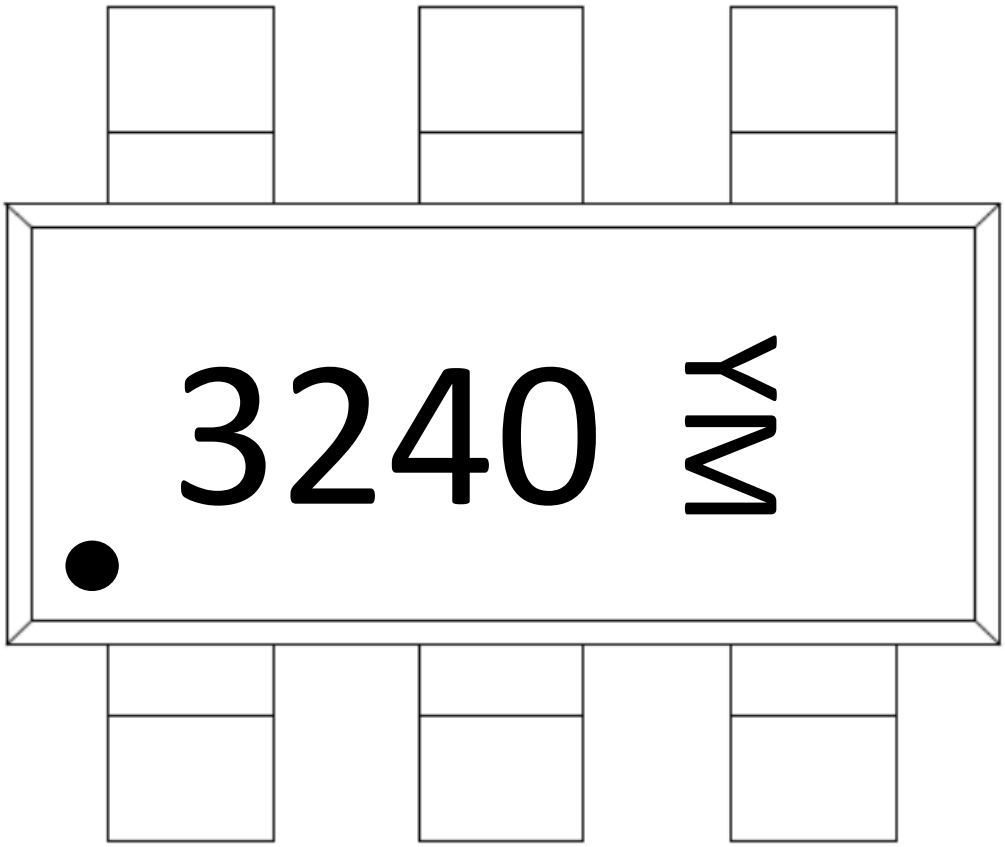
Electrical Characteristics (T_A=25°C Unless Otherwise Noted)

Symbol	Parameter	Test Condition	KS3240EA6			Unit
			Min.	Typ.	Max.	
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	1.6	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}=6A		16	20	mΩ
		V_{GS}=4.5V, I_{DS}=4A		20	26	mΩ
Diode Characteristics						
V_{SD} ⑤	Diode Forward Voltage	I_{SD}=6A, V_{GS}=0V		0.83	1.2	V
t_{rr}	Reverse Recovery Time	I_{SD}=6A, dI_{SD}/dt=100A/μs		9		ns
Q_{rr}	Reverse Recovery Charge			11		nC
Dynamic Characteristics ⑥						
R_G	Gate Resistance	V_{GS}=0V,V_{DS}=0V,F=1MHz		2		Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=15V, Frequency=1.0MHz		455		pF
C_{oss}	Output Capacitance			75		
C_{rss}	Reverse Transfer Capacitance			60		
$t_{d(ON)}$	Turn-on Delay Time	V_{DD}=15V, I_{DS}=6A, V_{GEN}=10V,R_G=6Ω		6		ns
t_r	Turn-on Rise Time			11		
$t_{d(OFF)}$	Turn-off Delay Time			20		
t_f	Turn-off Fall Time			8		
Gate Charge Characteristics ⑥						
Q_g	Total Gate Charge	V_{DS}=15V, V_{GS}=10V, I_{DS}=6A		10		nC
Q_{gs}	Gate-Source Charge			2.8		
Q_{gd}	Gate-Drain Charge			3.7		

Notes:
①Pulse width limited by safe operating area.
②Calculated continuous current based on maximum allowable junction temperature.The package limitation current is 6.5A.
③When mounted on 1 inch square copper board, t≤10sec. The value in any given application depends on the user's specific board design.
④Limited by T_{Jmax}, I_{AS} =6A, L=0.5mH, V_{DD} = 10V, R_G = 25Ω , Starting T_J = 25°C.
⑤Pulse test;Pulse width≤300μs, duty cycle≤2%.
⑥Guaranteed by design, not subject to production testing.

Ordering and Marking Information

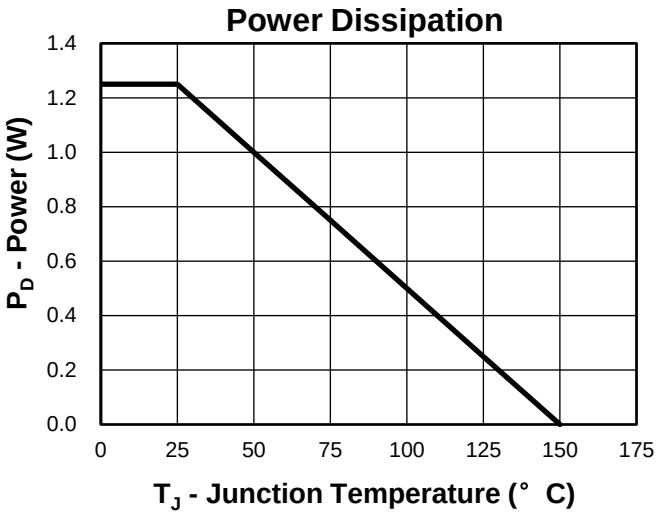
Device	Package	Packaging	Quantity	Reel Size	Tape width
KS3240EA6	SOT23-6L	Tape&Reel	3000	7”	8mm

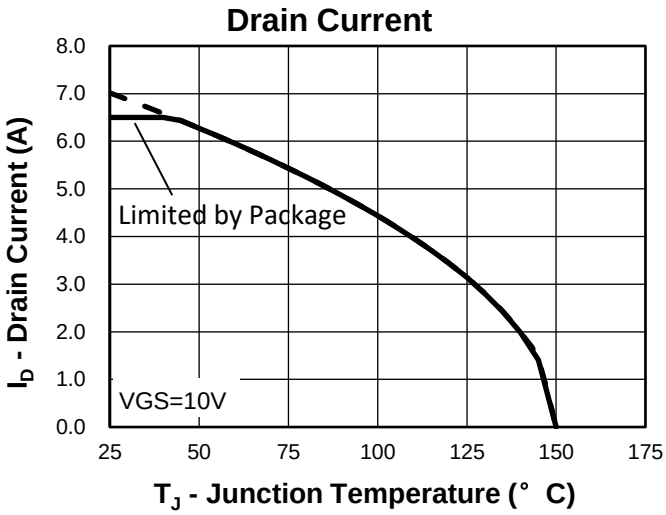


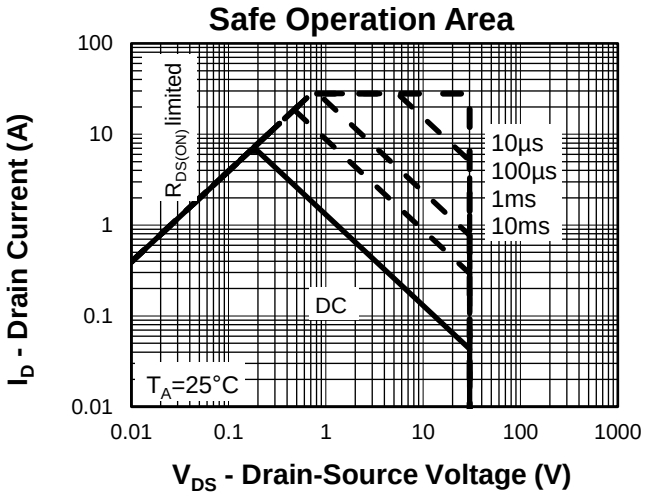
Y =Year,2017-A,2018-B,etc.

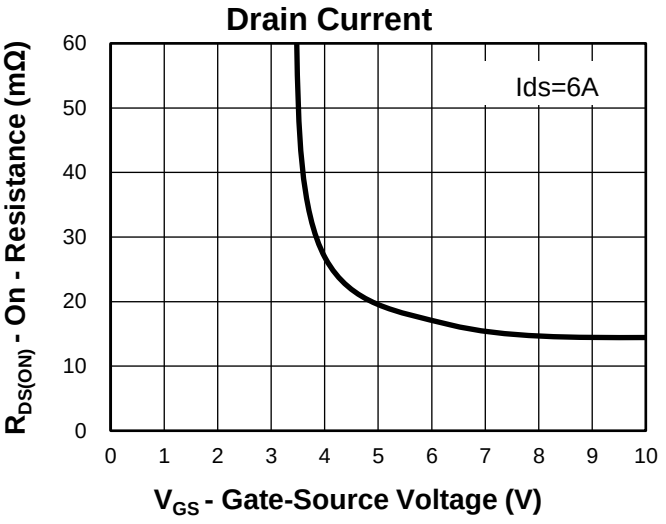
M =Month,Jan-1,Feb-2,....Sep-9,Oct-A,Nov-B,Dec-C.

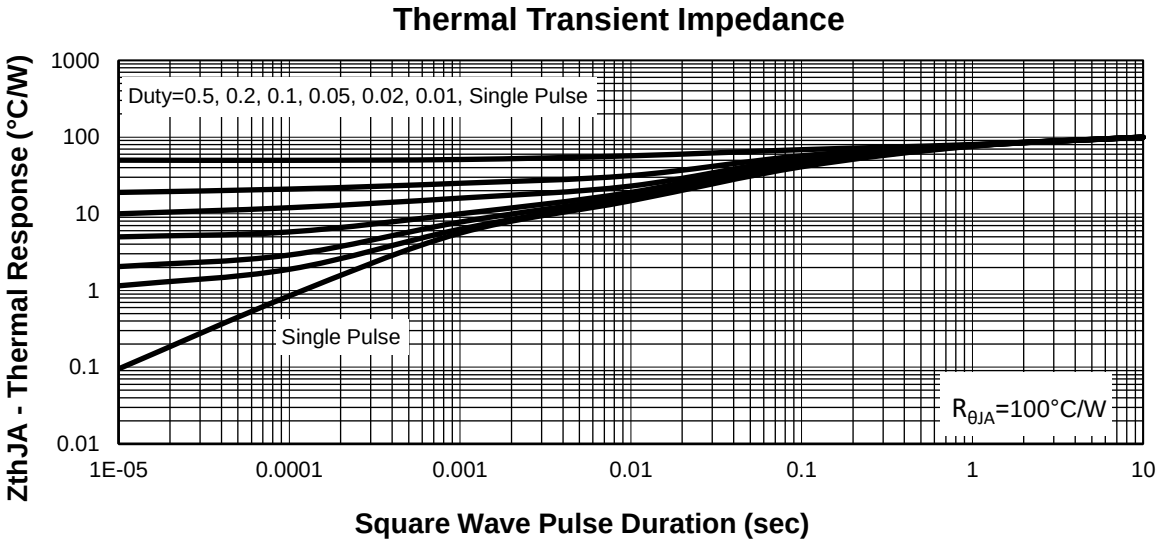
Typical Characteristics



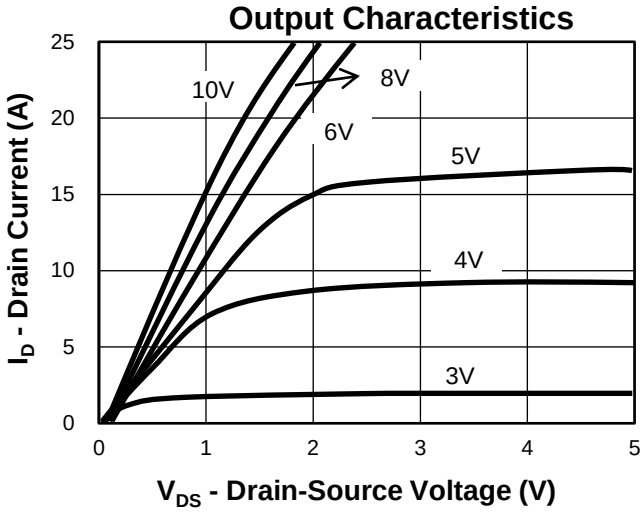


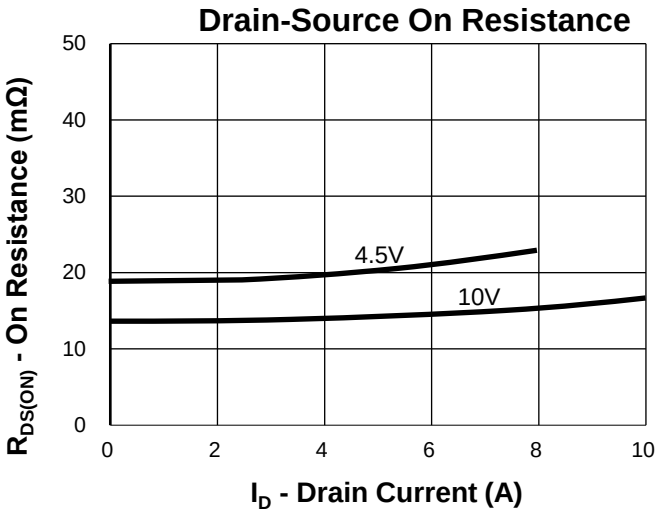


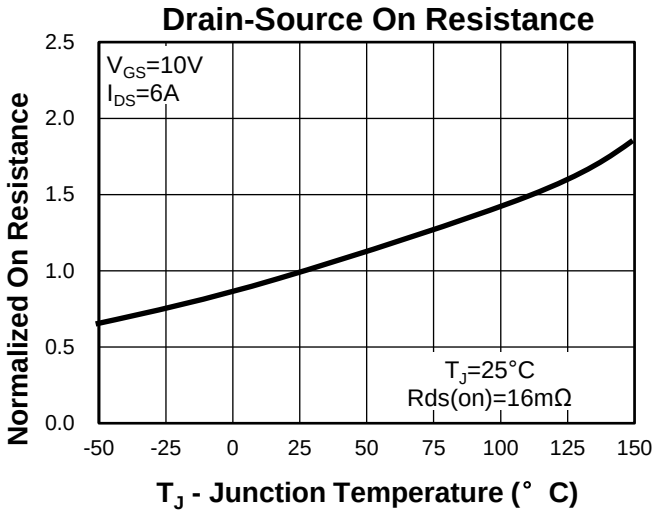


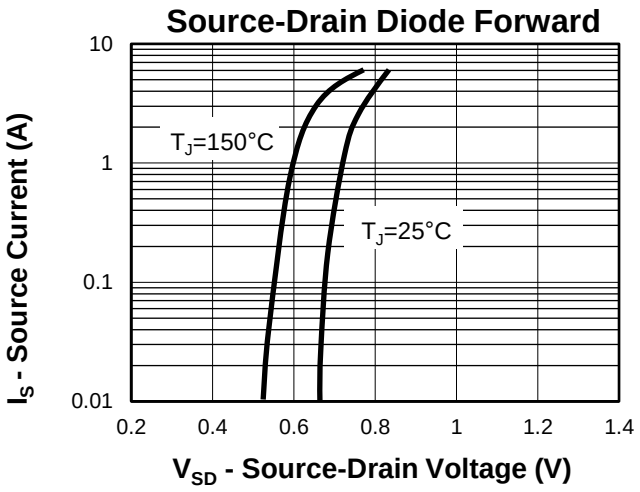


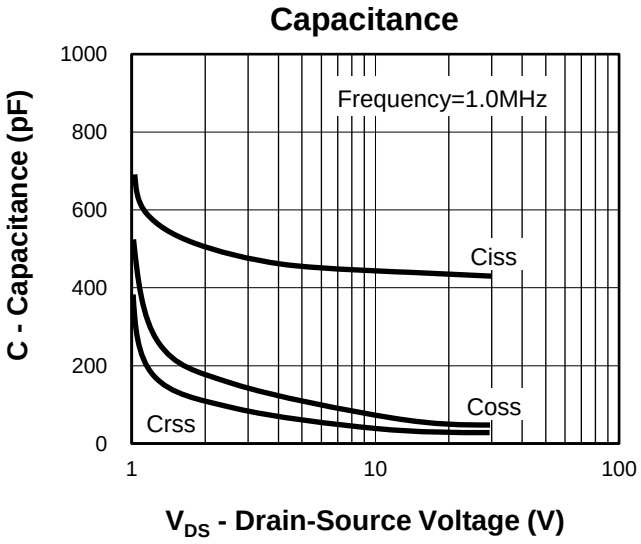
Typical Characteristics

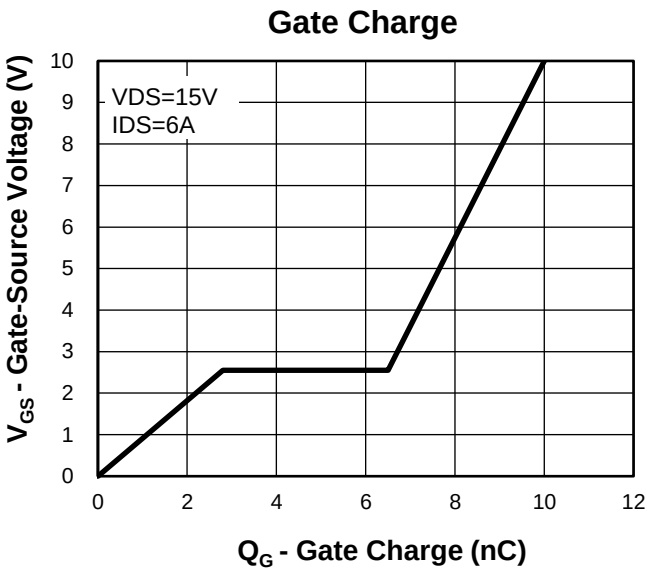












Package Information

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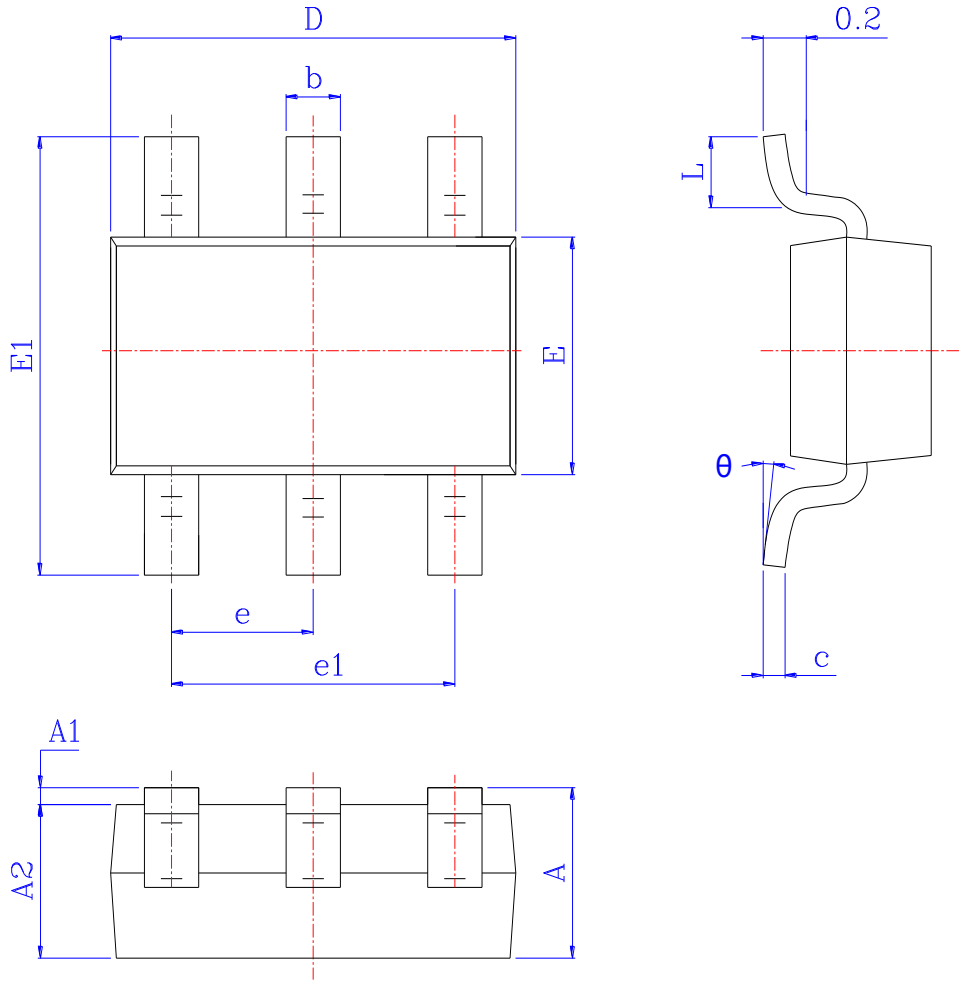
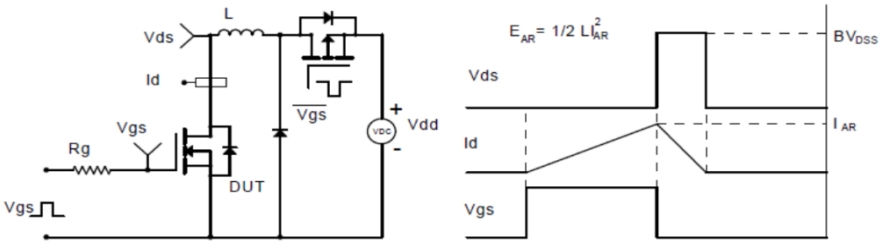
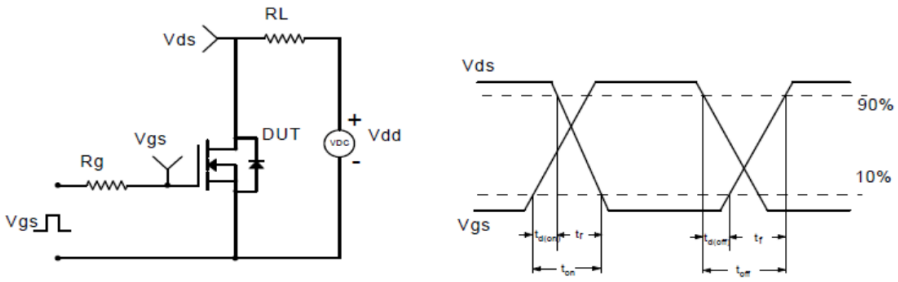


SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.950	1.150	1.450	0.037	0.045	0.057
A1	0.000	0.060	0.150	0.000	0.002	0.006
A2	0.900	1.100	1.300	0.035	0.043	0.051
b	0.300	0.400	0.500	0.012	0.016	0.020
c	0.080	0.140	0.200	0.003	0.006	0.008
D	2.800	2.900	3.050	0.110	0.114	0.120
E	1.500	1.600	1.750	0.059	0.063	0.069
E1	2.600	2.800	3.000	0.102	0.110	0.118
e	0.950BSC			0.037BSC		
e1	1.800	1.900	2.000	0.071	0.075	0.079
L	0.300	0.450	0.600	0.012	0.018	0.024
θ	0°	4°	8°	0°	4°	8°

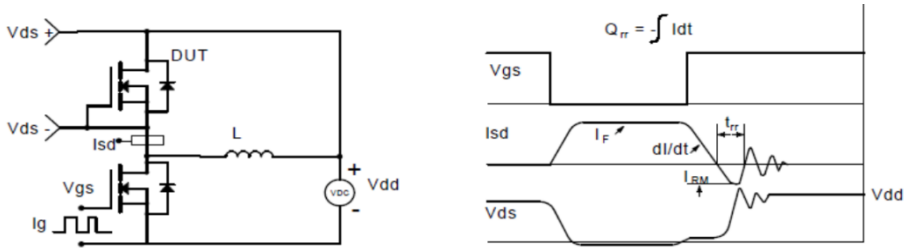
Avalanche Test Circuit and Waveforms



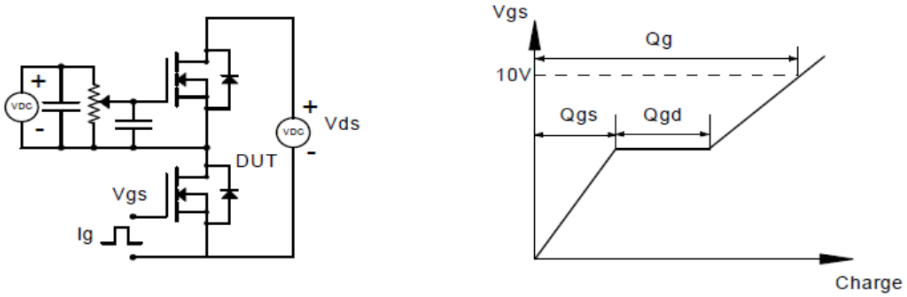
Switching Time Test Circuit and Waveforms



Diode Recovery Test Circuit and Waveforms



Gate Charge Test Circuit and Waveform



Customer Service

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