

Features

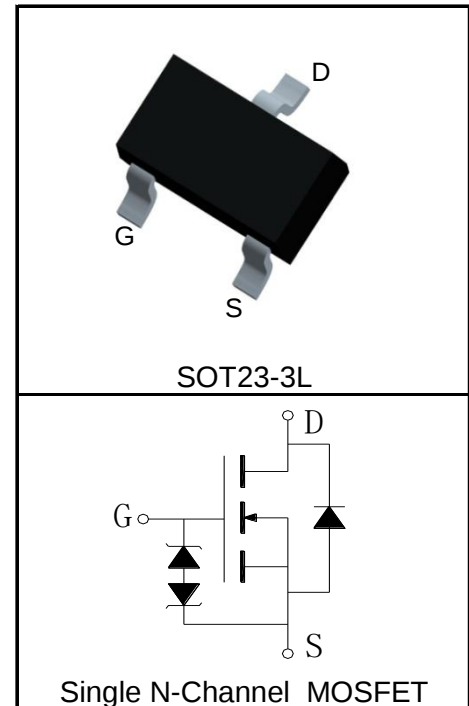
- 20V/8A,
 $R_{DS(ON)} = 11m\Omega(Typ.)@V_{GS}=4.5V$
 $R_{DS(ON)} = 14m\Omega(Typ.)@V_{GS}=2.5V$
- Low $R_{DS(ON)}$
- Super High Dense Cell Design
- Reliable and Rugged
- ESD Protected (HBM>2000V)

Applications

- Load Switch



Pin Description



Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (T _A =25°C Unless Otherwise Noted)				
V _{DSS}	Drain-Source Voltage		20	V
V _{GSS}	Gate-Source Voltage		±10	
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	32	A
I _D ^②	Continuous Drain Current(V _{GS} =4.5V)	T _A =25°C	8	A
		T _A =70°C	6.4	
P _D	Maximum Power Dissipation	T _A =25°C	1.3	W
		T _A =70°C	0.8	
R _{θJC}	Thermal Resistance-Junction to Case		-	°C/W
R _{θJA} ^③	Thermal Resistance-Junction to Ambient		100	°C/W
Drain-Source Avalanche Ratings				
E _{AS} ^④	Avalanche Energy, Single Pulsed		TBD	mJ

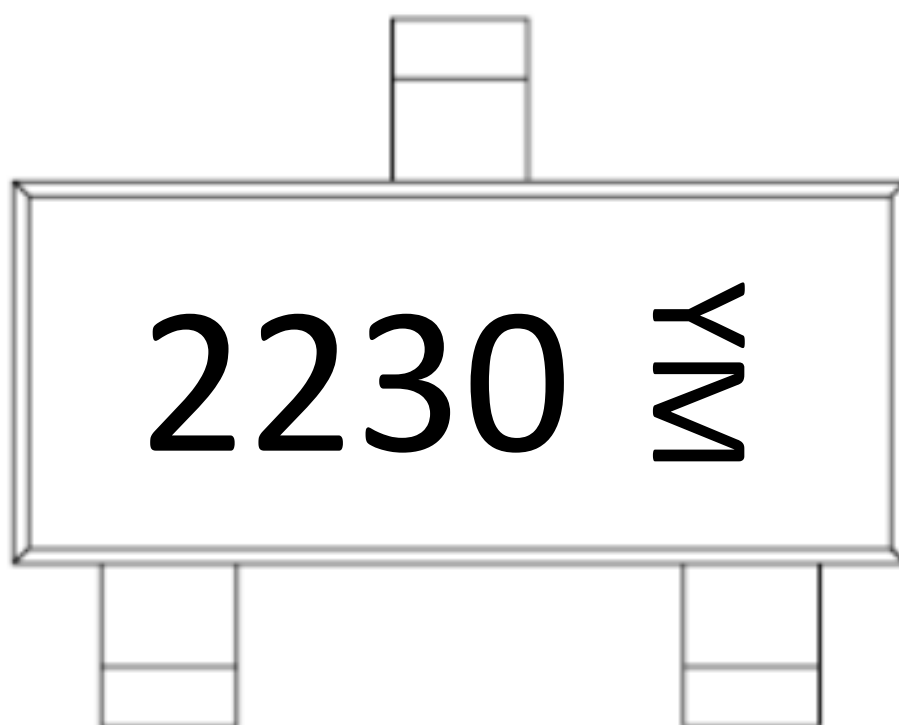
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Test Condition	KS2230EA			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	20			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =20V, V _{GS} =0V			1	μA
		T _J =125°C			30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	0.5	0.7	1.1	V
I _{GSS}	Gate Leakage Current	V _{GS} =±10V, V _{DS} =0V			±10	μA
R _{DS(ON)} ⑤	Drain-Source On-state Resistance	V _{GS} =4.5V, I _{DS} =6A		11	15	mΩ
		V _{GS} =2.5V, I _{DS} =4A		14	20	mΩ
Diode Characteristics						
V _{SD} ⑤	Diode Forward Voltage	I _{SD} =3A, V _{GS} =0V		0.79	1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} =3A, dI _{SD} /dt=100A/μs		16		ns
Q _{rr}	Reverse Recovery Charge			9		nC
Dynamic Characteristics ⑥						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz		1.2		Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =10V, Frequency=1.0MHz		625		pF
C _{oss}	Output Capacitance			120		
C _{rss}	Reverse Transfer Capacitance			90		
t _{d(ON)}	Turn-on Delay Time	V _{DD} =10V, I _{DS} =3A, V _{GEN} =4.5V, R _G =6Ω		8		ns
t _r	Turn-on Rise Time			13		
t _{d(OFF)}	Turn-off Delay Time			32		
t _f	Turn-off Fall Time			9		
Gate Charge Characteristics ⑥						
Q _g	Total Gate Charge	V _{DS} =10V, V _{GS} =4.5V, I _{DS} =3A		10		nC
Q _{gs}	Gate-Source Charge			1.9		
Q _{gd}	Gate-Drain Charge			3.2		

- Notes:
- ① Pulse width limited by safe operating area.
 - ② Calculated continuous current based on maximum allowable junction temperature.
 - ③ When 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.
 - ④ Limited by T_{Jmax} . Starting $T_J = 25^{\circ}\text{C}$.
 - ⑤ Pulse test; Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
 - ⑥ Guaranteed by design, not subject to production testing.

Ordering and Marking Information

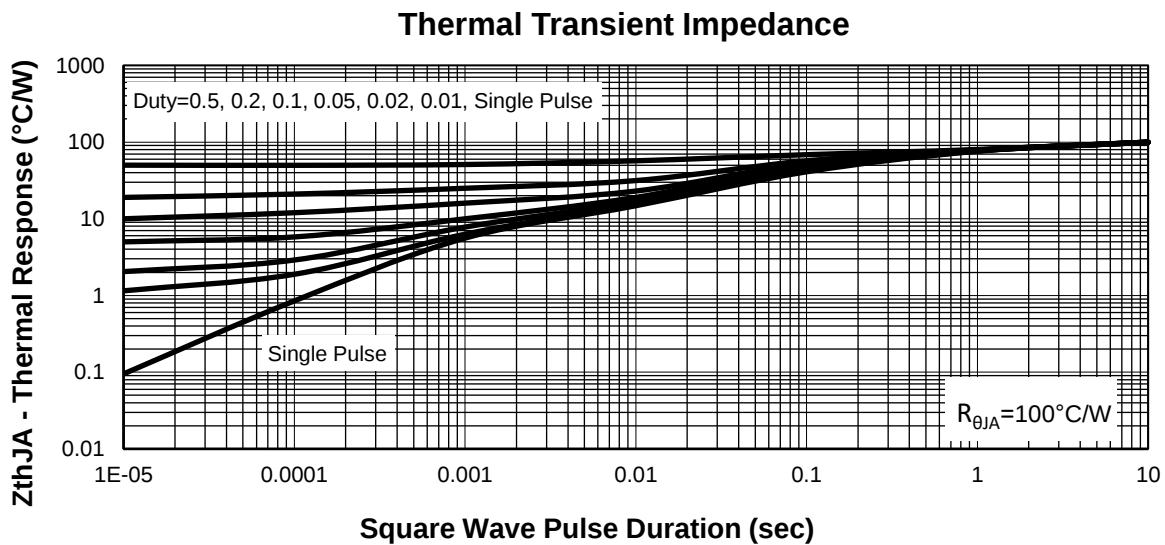
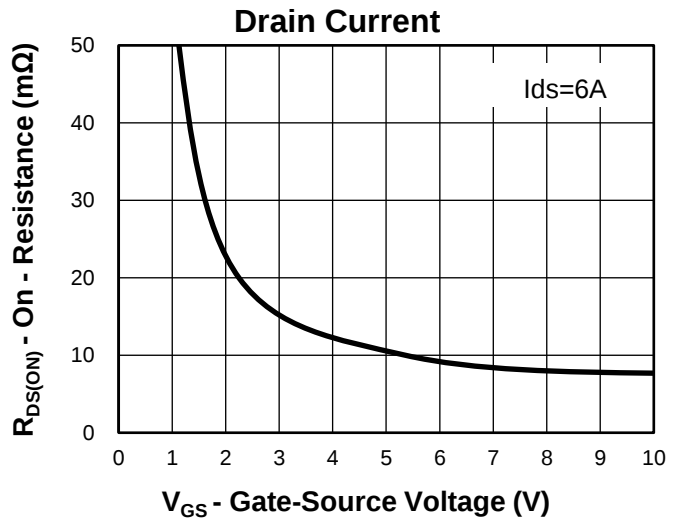
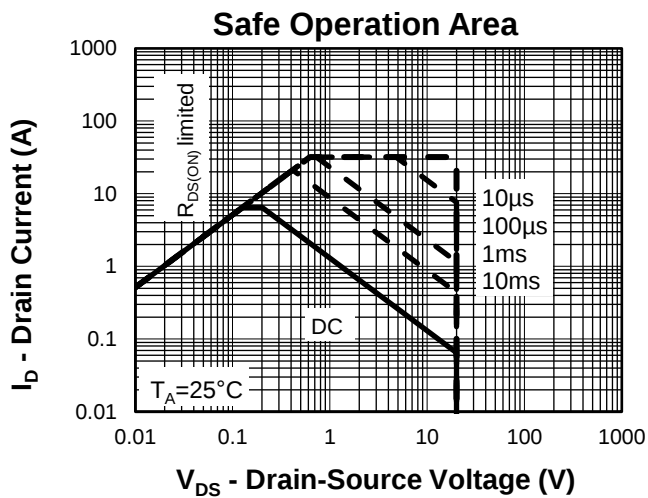
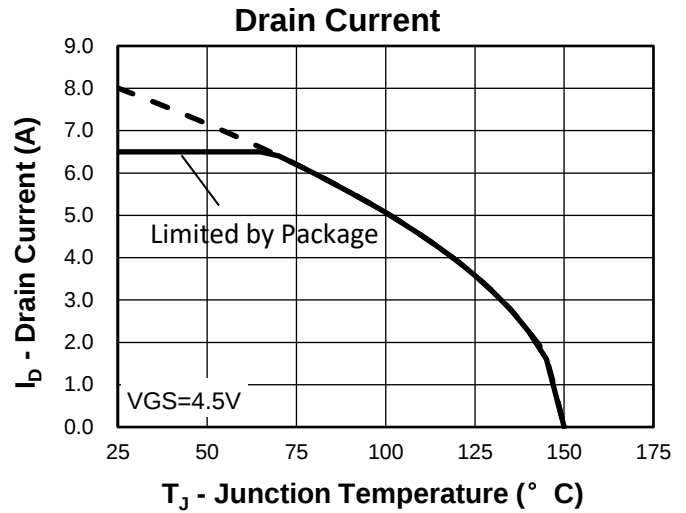
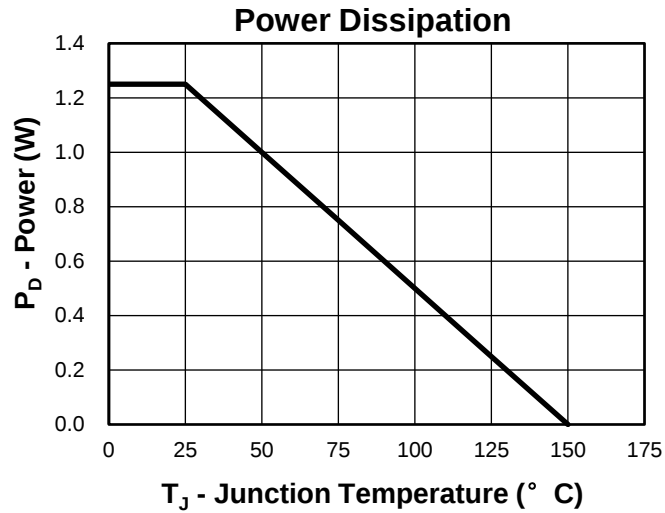
Device	Package	Packaging	Quantity	Reel Size	Tape width
KS2230EA	SOT23-3L	Tape&Reel	3000	7"	8mm



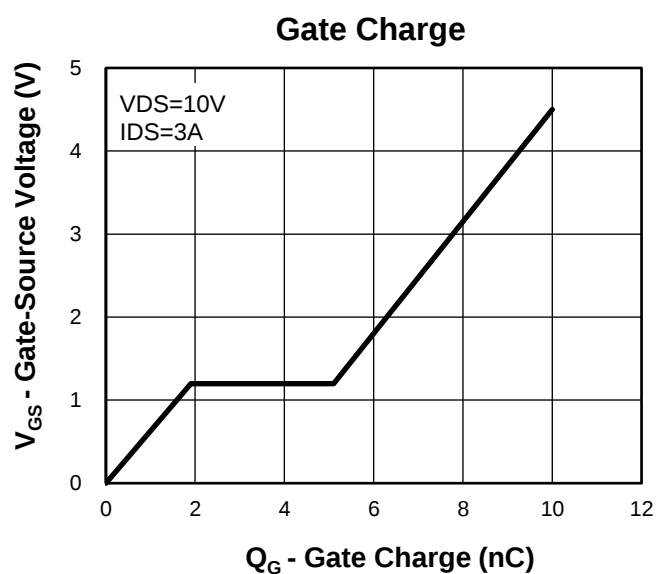
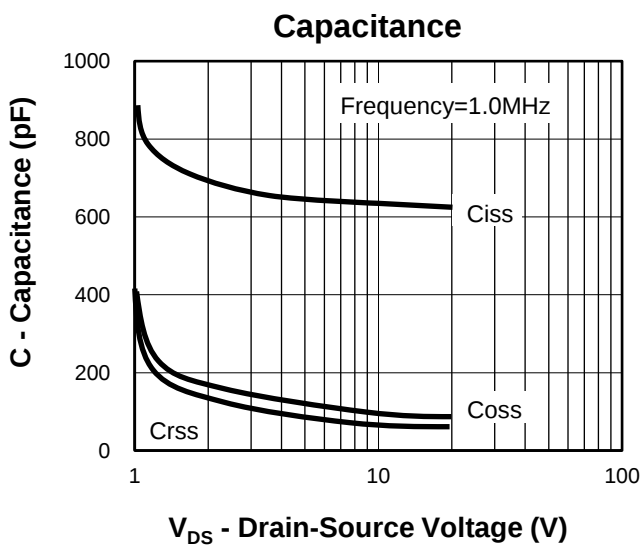
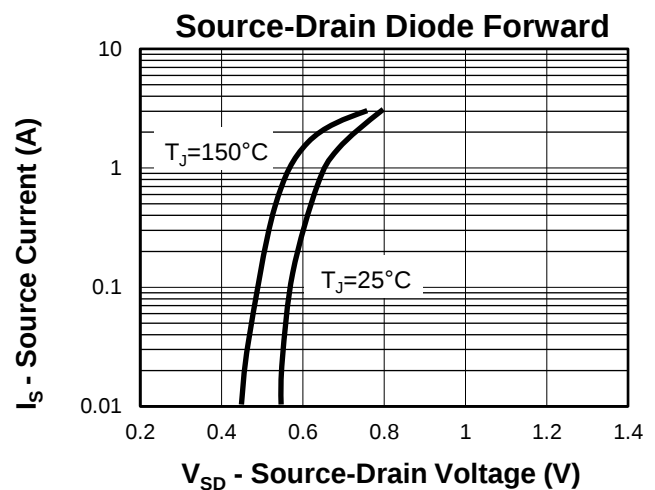
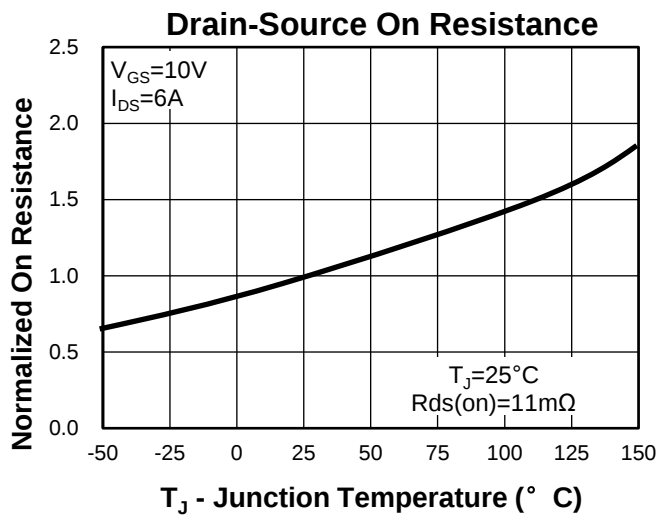
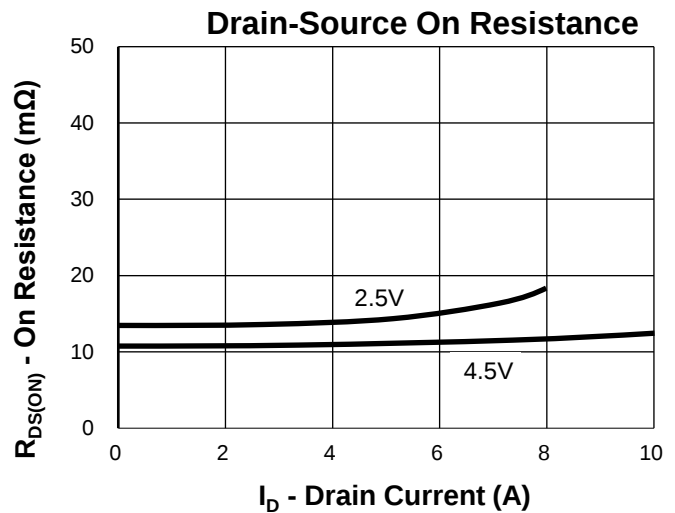
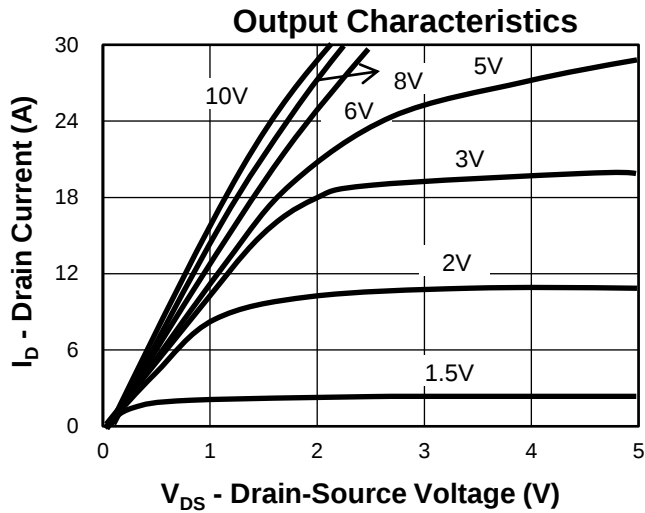
Y =Year,2017-A,2018-B,etc.

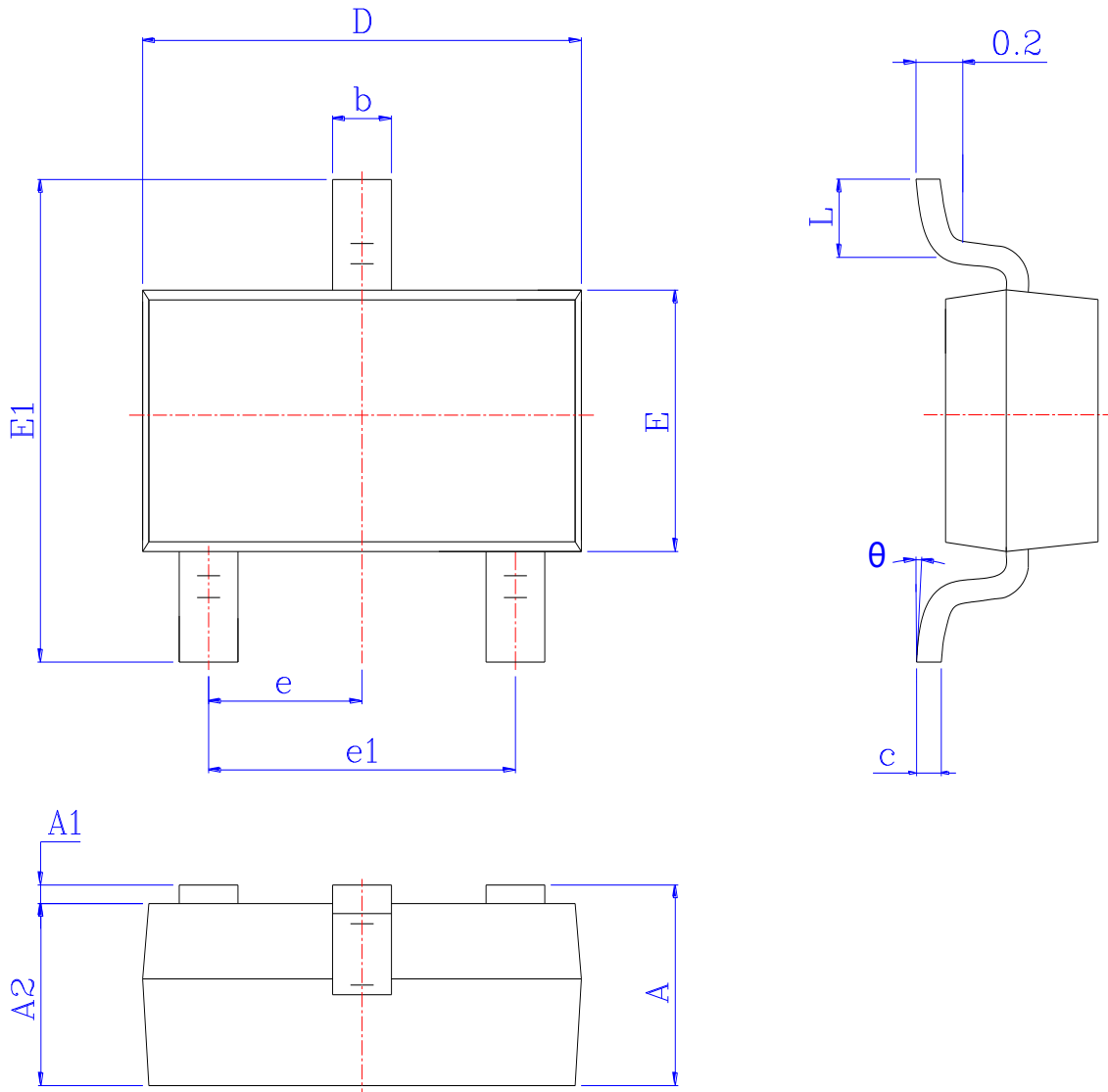
M =Month,Jan-1,Feb-2,....Sep-9,Oct-A,Nov-B,Dec-C.

Typical Characteristics



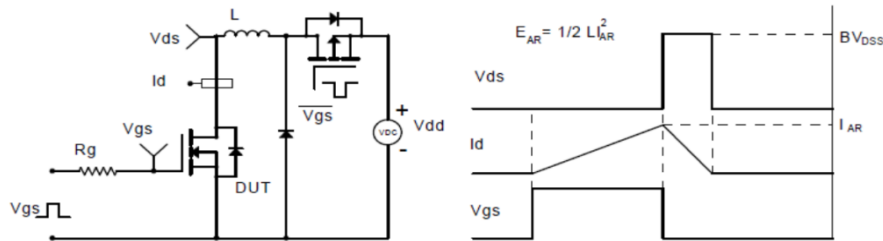
Typical Characteristics



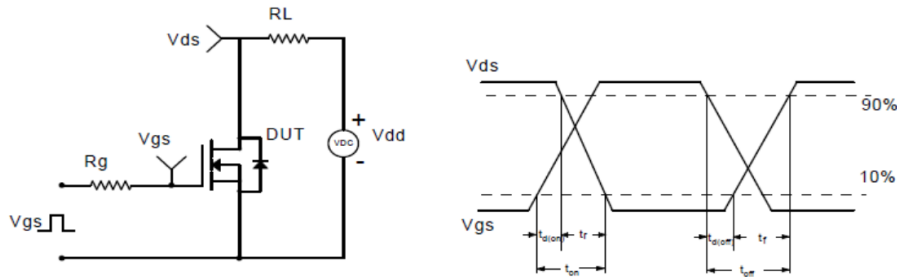
Package Information
SOT23-3L


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	*	0.150	0.000	*	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	0.150	0.200	0.003	0.006	0.008
D	2.800	2.925	3.050	0.110	0.115	0.120
E	1.500	1.600	1.750	0.059	0.063	0.069
E1	2.650	2.800	3.000	0.104	0.110	0.118
e	0.950 BSC			0.037 BSC		
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°

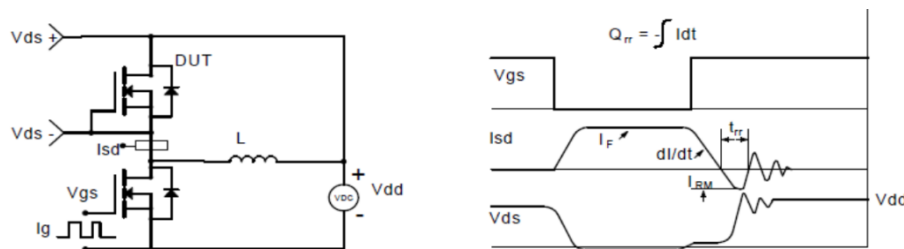
Avalanche Test Circuit and Waveforms



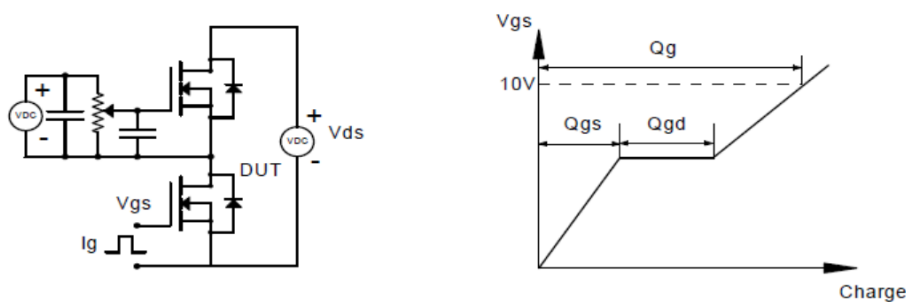
Switching Time Test Circuit and Waveforms



Diode Recovery Test Circuit and Waveforms



Gate Charge Test Circuit and Waveform



Customer Service

Kwansemi Semiconductor Co.,Ltd

Email:Sales@kwansemi.com

Web:www.kwansemi.com

DISCLAIMER:

Kwansemi reserves the right to change the specifications and circuitry without notice at any time. The Products are not designed for use in hostile environments, including, without limitation, aircraft, nuclear power generation, medical appliances, and devices or systems in which malfunction of any Product can reasonably be expected to result in a personal injury. Seller's customers using or selling Seller's products for use in such applications do so at their own risk and agree to fully defend and indemnify Seller.