

### Features

- -100V/-1.6A,  
 $R_{DS(ON)} = 225m\Omega(Typ.)@V_{GS}=-10V$   
 $R_{DS(ON)} = 250m\Omega(Typ.)@V_{GS}=-4.5V$
- Low  $R_{DS(ON)}$
- Super High Dense Cell Design
- Reliable and Rugged

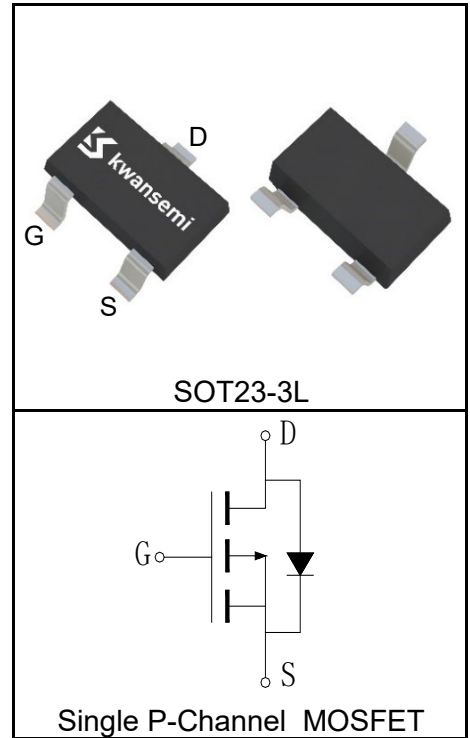
### Applications

- Load Switch



Halogen-Free

### Pin Description



### Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
<b>Common Ratings</b> ( $T_A=25^\circ C$ Unless Otherwise Noted)			
$V_{DSS}$	Drain-Source Voltage	-100	V
$V_{GSS}$	Gate-Source Voltage	$\pm 20$	
$T_{Jmax}$	Maximum Junction Temperature	150	$^\circ C$
$T_J, T_{STG}$	Operating and Storage Temperature Range	-55 to 150	$^\circ C$
$I_S$	Diode Continuous Forward Current	$T_A=25^\circ C$ -1.5	A
<b>Mounted on Large Heat Sink</b>			
$I_{DP}^{①}$	Pulse Drain Current	$T_A=25^\circ C$ -6.4	A
$I_D^{②}$	Continuous Drain Current( $V_{GS}=-10V$ )	$T_A=25^\circ C$ -1.6	A
		$T_A=70^\circ C$ -1.2	
$P_D$	Maximum Power Dissipation	$T_A=25^\circ C$ 1.25	W
		$T_A=70^\circ C$ 0.8	
$R_{\theta JL}$	Thermal Resistance-Junction to Lead	60	$^\circ C/W$
$R_{\theta JA}^{③}$	Thermal Resistance-Junction to Ambient	100	$^\circ C/W$
<b>Drain-Source Avalanche Ratings</b>			
$E_{AS}^{④}$	Avalanche Energy, Single Pulsed	36	mJ

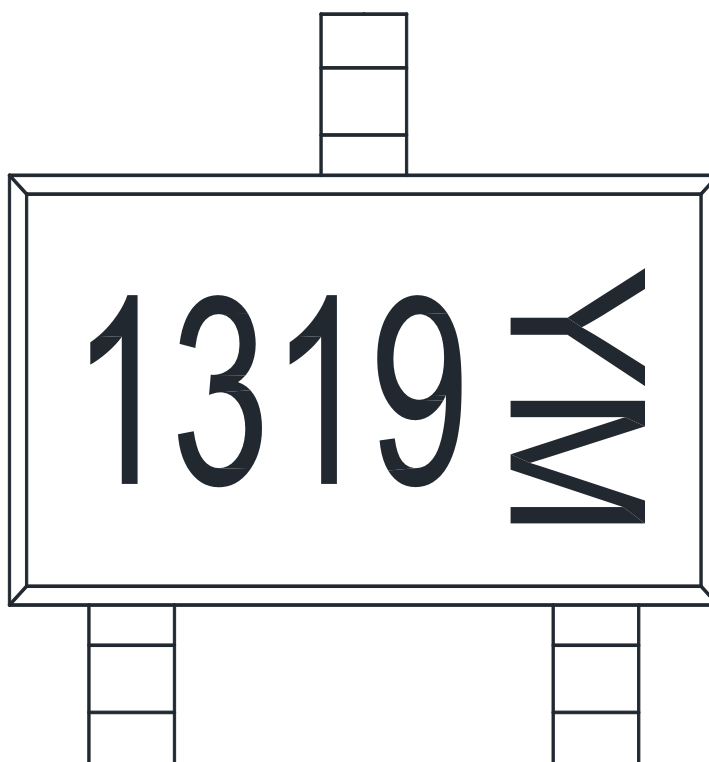
**Electrical Characteristics** ( $T_A=25^\circ\text{C}$  Unless Otherwise Noted)

Symbol	Parameter	Test Condition	Rating			Unit
			Min.	Typ.	Max.	
<b>Static Characteristics</b>						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=-250\mu A$	-100			V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=-100V, V_{GS}=0V$			-1	$\mu A$
		$T_J=125^\circ\text{C}$			-100	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=-250\mu A$	-1.2	-1.8	-2.3	V
$I_{GSS}$	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$			$\pm 100$	nA
$R_{DS(ON)}^{(5)}$	Drain-Source On-state Resistance	$V_{GS}=-10V, I_{DS}=-2A$		225	270	$m\Omega$
		$V_{GS}=-4.5V, I_{DS}=-1A$		250	330	$m\Omega$
<b>Diode Characteristics</b>						
$V_{SD}^{(5)}$	Diode Forward Voltage	$I_{SD}=-2A, V_{GS}=0V$		-0.83	-1.2	V
$t_{rr}$	Reverse Recovery Time	$I_{SD}=-2A, di_{SD}/dt=-100A/\mu s$		27		ns
$Q_{rr}$	Reverse Recovery Charge			76		nC
<b>Dynamic Characteristics<sup>(6)</sup></b>						
$R_G$	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$		65		$\Omega$
$C_{iss}$	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=-50V,$ Frequency=1.0MHz		765		pF
$C_{oss}$	Output Capacitance			30		
$C_{riss}$	Reverse Transfer Capacitance			18		
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD}=-50V, I_{DS}=-2A,$ $V_{GEN}=-10V, R_G=6\Omega$		9		ns
$t_r$	Turn-on Rise Time			8		
$t_{d(OFF)}$	Turn-off Delay Time			28		
$t_f$	Turn-off Fall Time			12		
<b>Gate Charge Characteristics<sup>(6)</sup></b>						
$Q_g$	Total Gate Charge	$V_{DS}=-50V, V_{GS}=-10V,$ $I_{DS}=-2A$		18		nC
$Q_{gs}$	Gate-Source Charge			3.4		
$Q_{gd}$	Gate-Drain Charge			4.2		

- 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  $T_J = 25^\circ\text{C}$ ,  $I_{ASmax} = -12A$ ,  $L=0.5\text{mH}$ ,  $V_{DD} = -48V$ ,  $R_G = 25\Omega$ ,  $V_{GS} = -10V$ . Part not recommended for use above this value.
  - ⑤ Pulse test; Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
  - ⑥ Guaranteed by design, not subject to production testing.

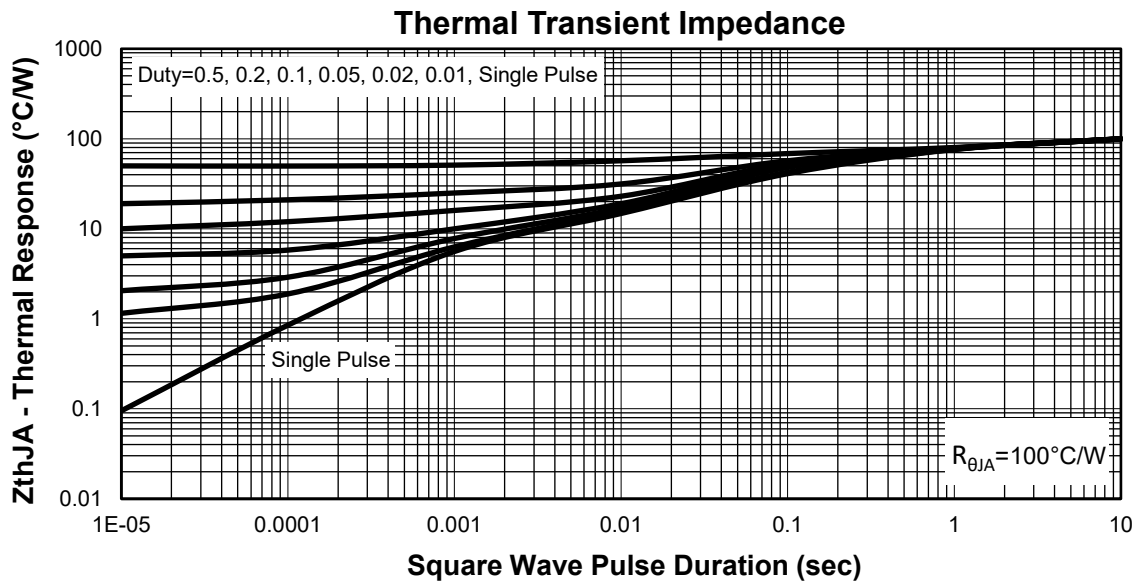
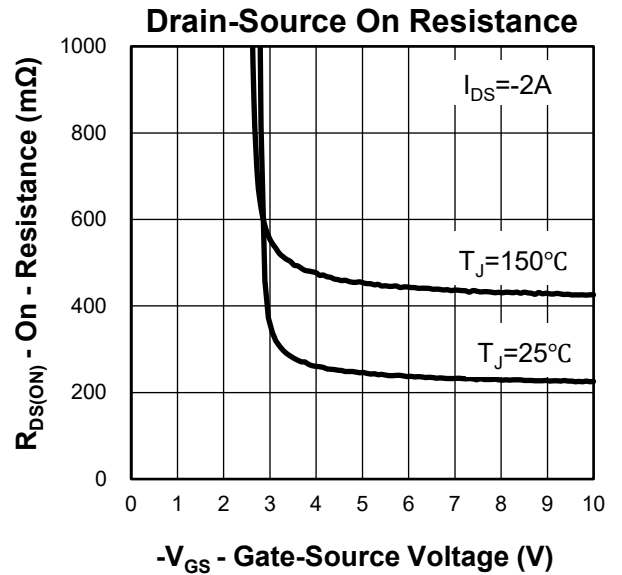
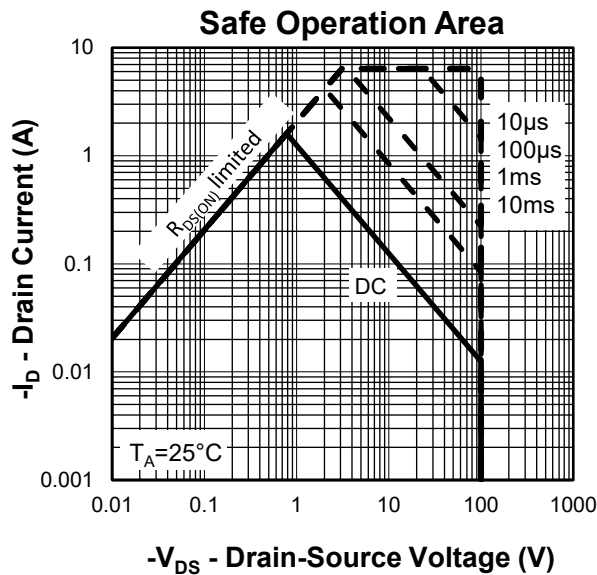
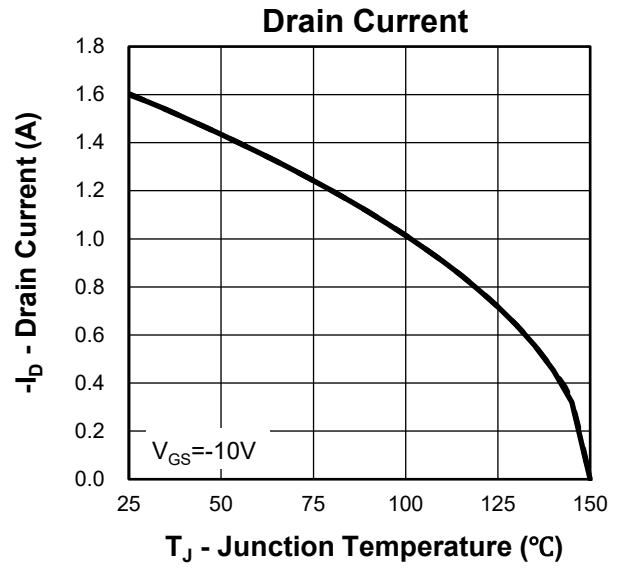
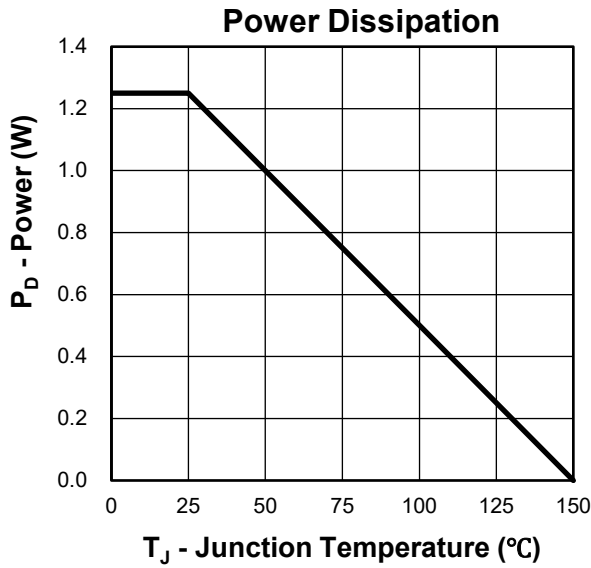
**Ordering and Marking Information**

Device	Package	Packaging	Quantity	Reel Size	Tape width
KS1319EB	SOT23-3L	Tape&Reel	3000	7"	8mm



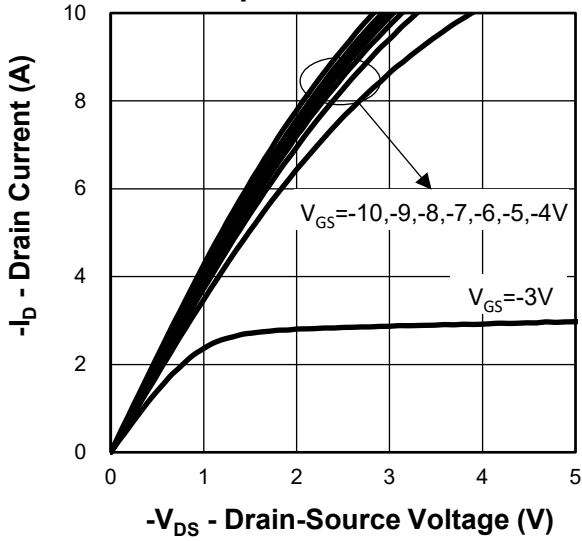
Y =Year,2017-A,2018-B,etc.

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

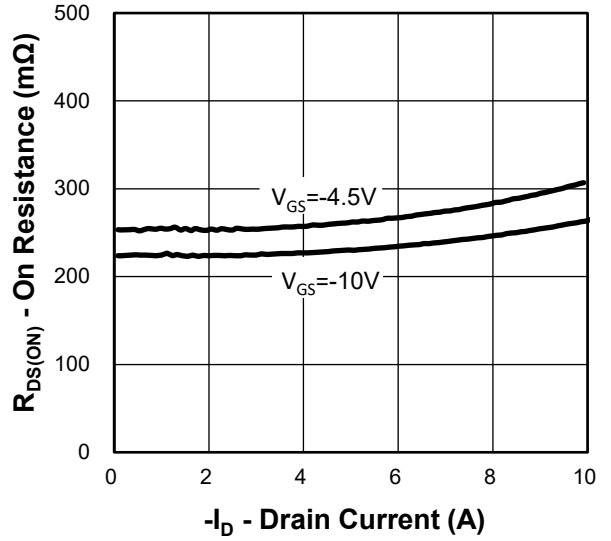
**Typical Characteristics**


Typical Characteristics

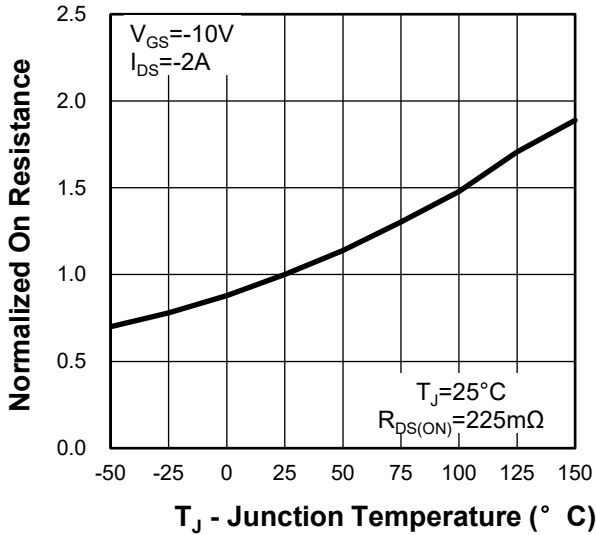
Output Characteristics



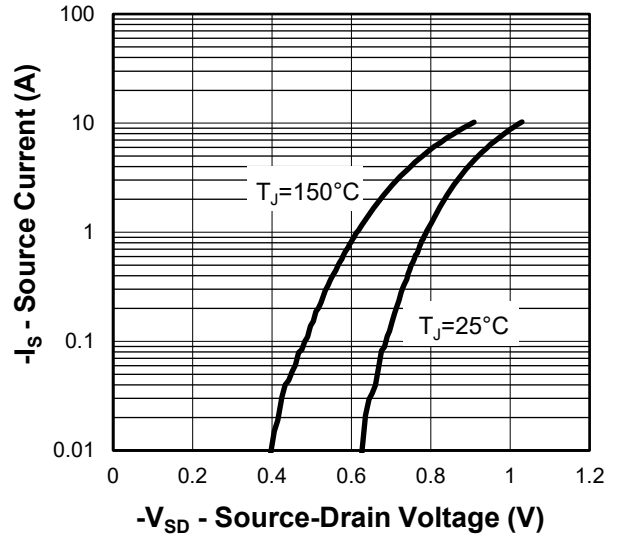
Drain-Source On Resistance



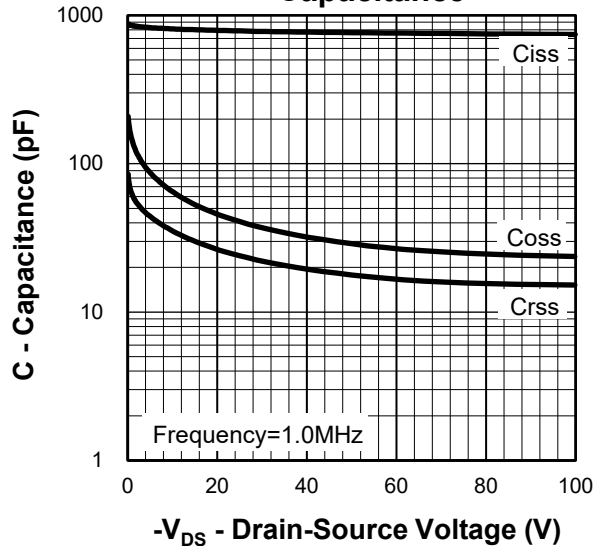
Drain-Source On Resistance



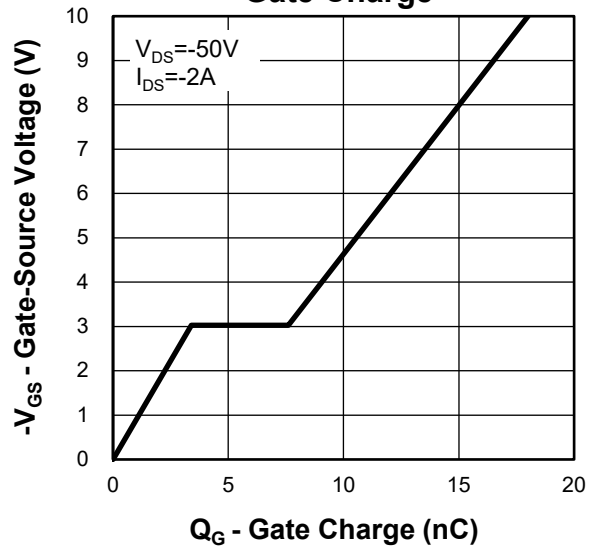
Source-Drain Diode Forward

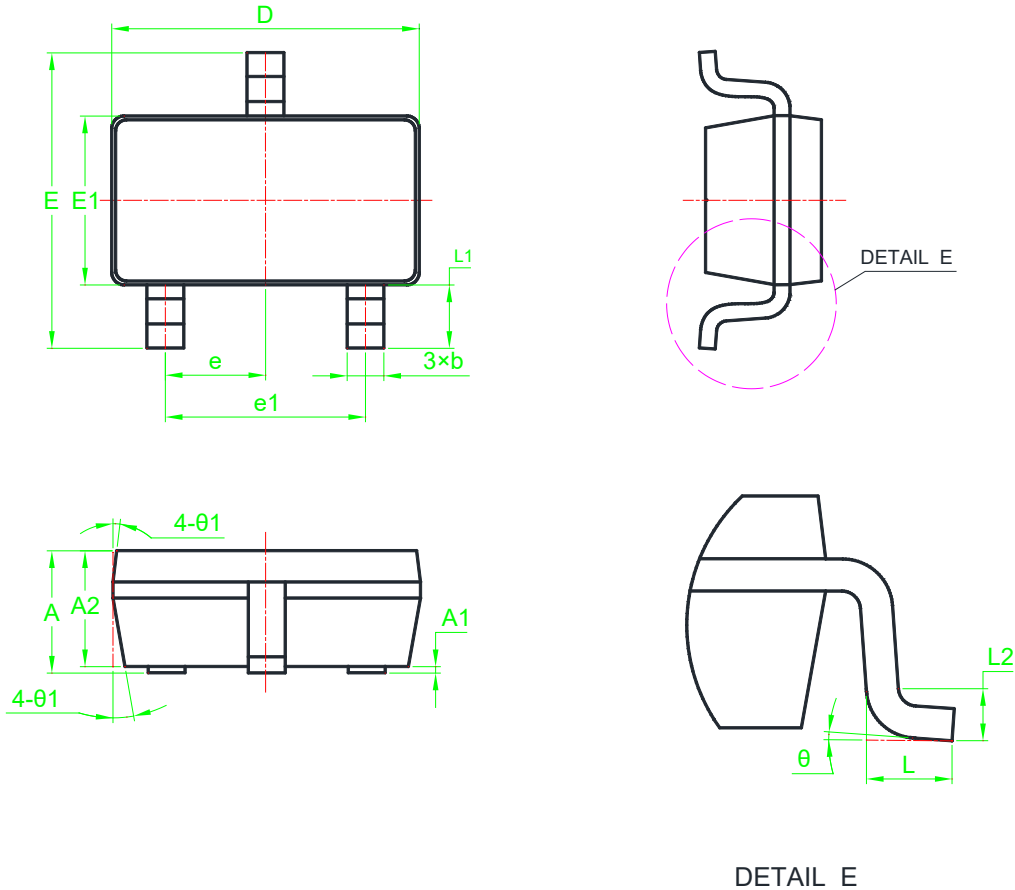


Capacitance



Gate Charge

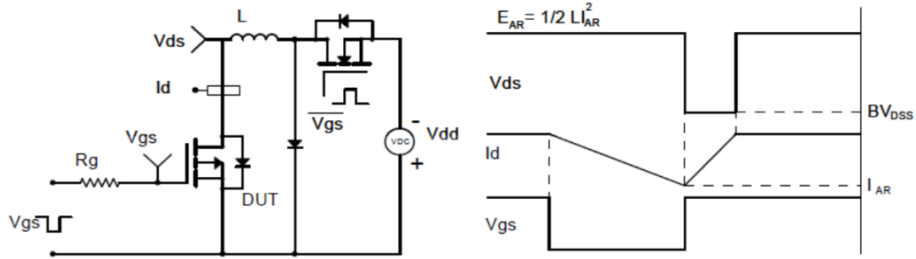


**Package Information**
**SOT23-3L**


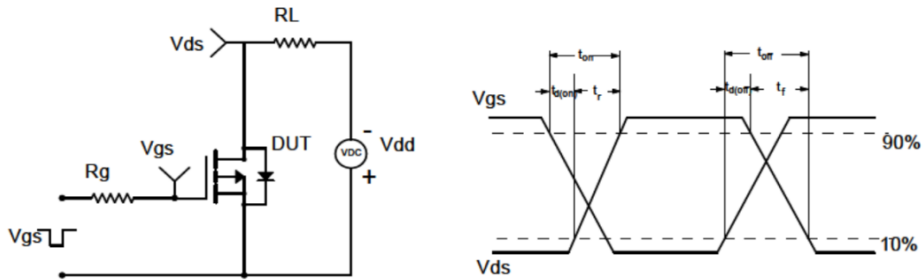
SYMBOL	MM			INCH			SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX		MIN	NOM	MAX	MIN	NOM	MAX
A	1.05	1.15	1.25	0.041	0.045	0.049	e	0.95BSC			0.037BSC		
A1	0.01	*	0.10	0.000	*	0.004	e1	1.9BSC			0.075BSC		
A2	1.05	1.10	1.15	0.041	0.043	0.045	L	0.30	0.45	0.60	0.012	0.018	0.024
b	0.30	0.40	0.50	0.012	0.016	0.020	L1	0.6REF			0.024REF		
D	2.82	2.92	3.02	0.111	0.115	0.119	L2	0.254BSC			0.01BSC		
E	2.65	2.80	2.95	0.104	0.110	0.116	θ	0°	*	8°	0°	*	8°
E1	1.50	1.60	1.70	0.059	0.063	0.067	θ 1	0°	*	10°	0°	*	10°

Note: Dimensions do not inclusive burrs and mold flash.

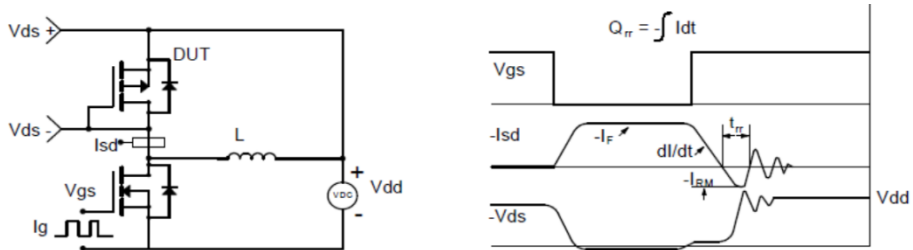
### Avalanche Test Circuit and Waveforms



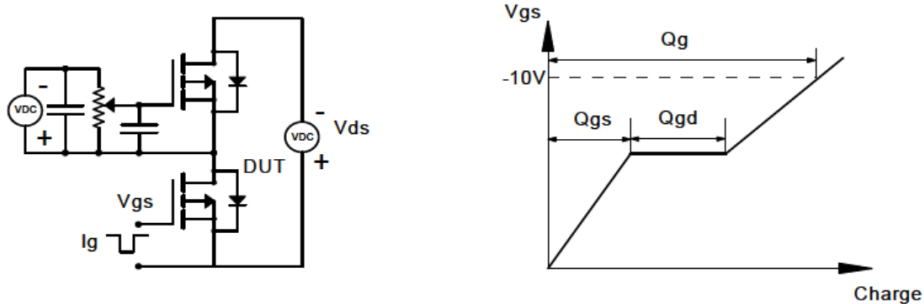
### Switching Time Test Circuit and Waveforms



### Diode Recovery Test Circuit and Waveforms



### Gate Charge Test Circuit and Waveform



### Customer Service

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