

Features

- -20V/-14A,
 $R_{DS(ON)} = 7m\Omega(Typ.)@V_{GS} = -4.5V$
 $R_{DS(ON)} = 9m\Omega(Typ.)@V_{GS} = -2.5V$
 $R_{DS(ON)} = 12m\Omega(Typ.)@V_{GS} = -1.8V$
- Low $R_{DS(ON)}$
- Super High Dense Cell Design
- Reliable and Rugged

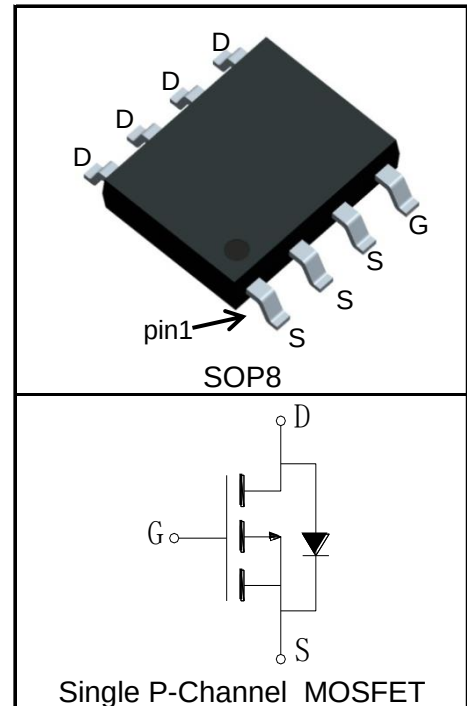
Applications

- Load Switch
- PWM Applications
- Power Management



Halogen-Free

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		±12	
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	-2.6	A
Mounted on Large Heat Sink				
I _{DP} ^①	300μs Pulse Drain Current Tested	T _A =25°C	-56	A
I _D ^②	Continuous Drain Current(V _{GS} =-4.5V)	T _A =25°C	-14	A
		T _A =70°C	-11	
P _D	Maximum Power Dissipation	T _A =25°C	2.5	W
		T _A =70°C	1.6	
R _{θJC}	Thermal Resistance-Junction to Case		25	°C/W
R _{θJA} ^③	Thermal Resistance-Junction to Ambient		50	°C/W
Drain-Source Avalanche Ratings				
E _{AS} ^④	Avalanche Energy, Single Pulsed		25	mJ

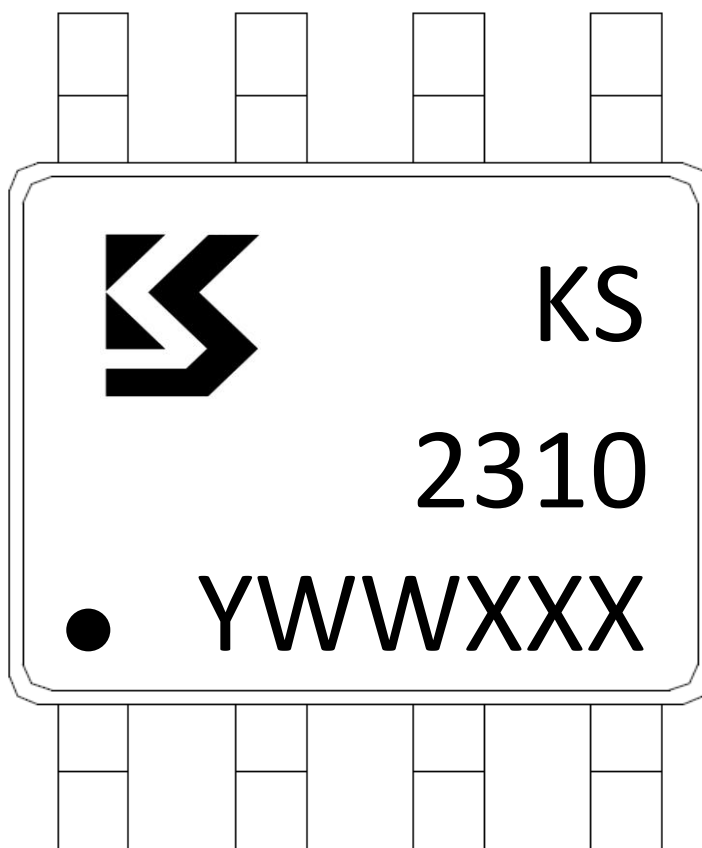
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Test Condition	KS2310HB			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			
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =-250μA	-0.4	-0.7	-1	V
I _{GSS}	Gate Leakage Current	V _{GS} =±12V, V _{DS} =0V			±100	nA
R _{DS(ON)} ^⑤	Drain-Source On-state Resistance	V _{GS} =-4.5V, I _{DS} =-14A		7	8.5	mΩ
		V _{GS} =-2.5V, I _{DS} =-12A		9	12	mΩ
		V _{GS} =-1.8V, I _{DS} =-8A		12	15	mΩ
Diode Characteristics						
V _{SD} ^⑤	Diode Forward Voltage	I _{SD} =-14A, V _{GS} =0V		-0.87	-1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} =-14A, dI _{SD} /dt=-100A/μs		25		ns
Q _{rr}	Reverse Recovery Charge			132		nC
Dynamic Characteristics ^⑥						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz		3.2		Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =-10V, Frequency=1.0MHz		4580		pF
C _{oss}	Output Capacitance			590		
C _{rss}	Reverse Transfer Capacitance			375		
t _{d(ON)}	Turn-on Delay Time	V _{DD} =-10V, I _{DS} =-14A, V _{GEN} =-4.5V, R _G =3Ω		21		ns
t _r	Turn-on Rise Time			30		
t _{d(OFF)}	Turn-off Delay Time			58		
t _f	Turn-off Fall Time			37		
Gate Charge Characteristics ^⑥						
Q _g	Total Gate Charge	V _{DS} =-10V, V _{GS} =-4.5V, I _{DS} =-14A		37		nC
Q _{gs}	Gate-Source Charge			6		
Q _{gd}	Gate-Drain Charge			11		

- 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 $T_{Jmax}, I_{AS} = -10A, L=0.5mH, V_{DD} = -10V, R_G = 25\Omega$, 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
KS2310HB	SOP8	Tape&Reel	3000	13"	12mm

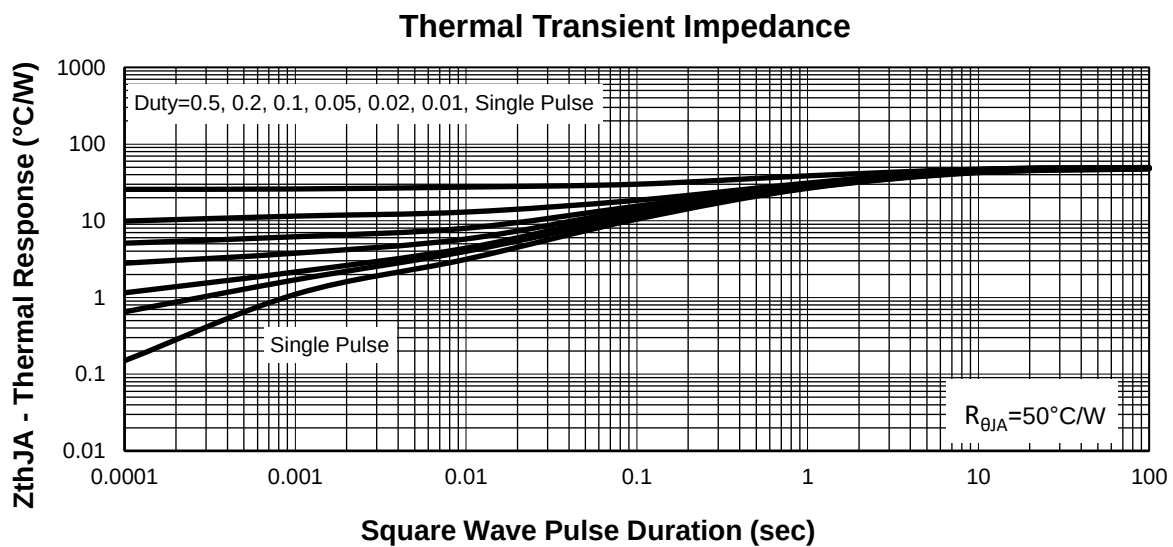
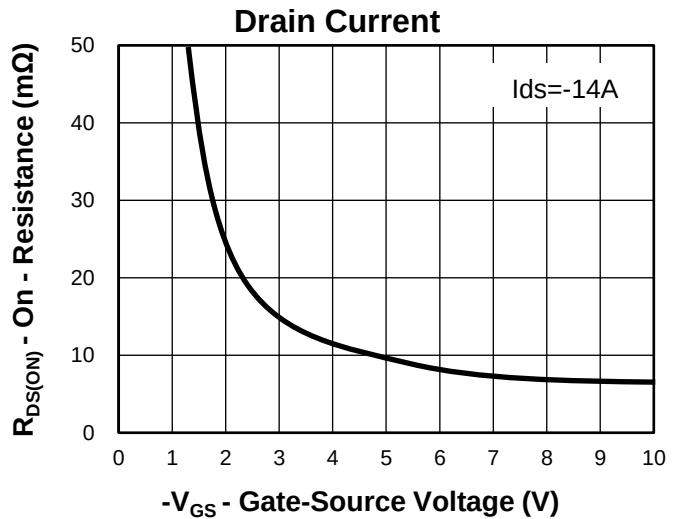
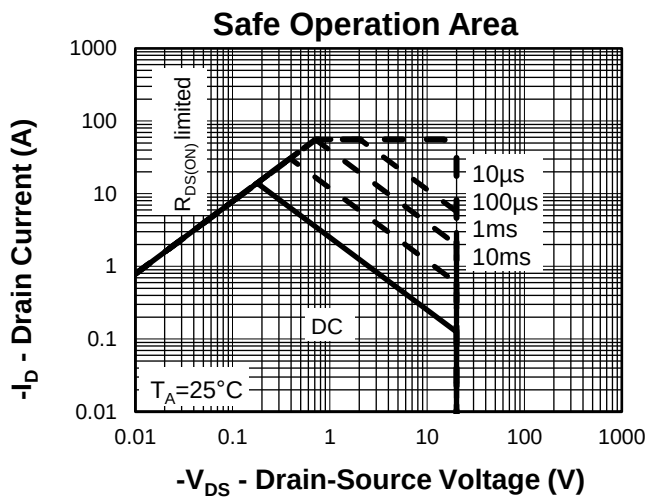
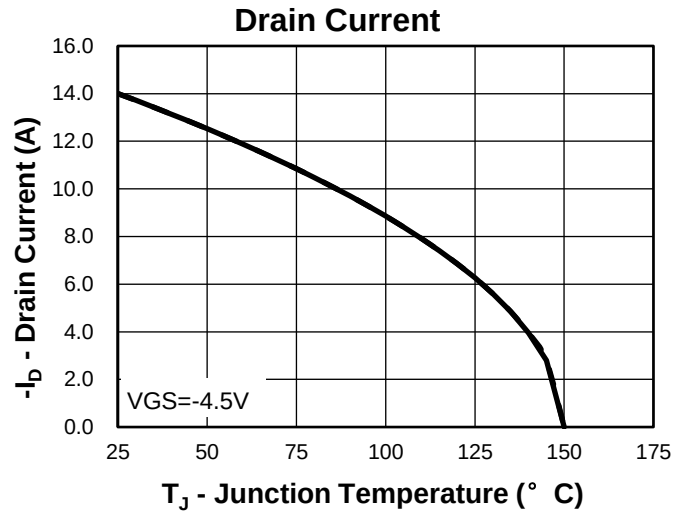
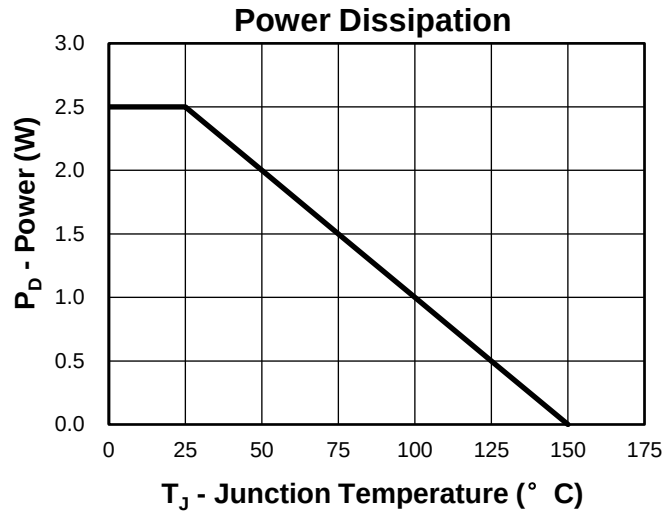


Y =Year,2017-A,2018-B,etc.

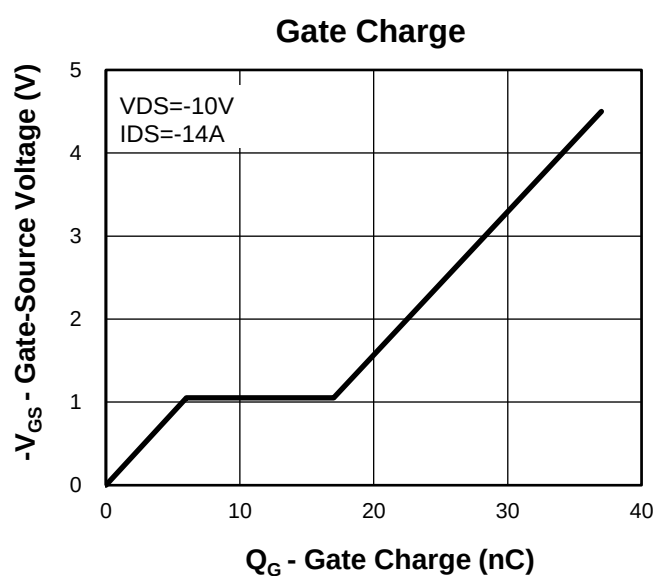
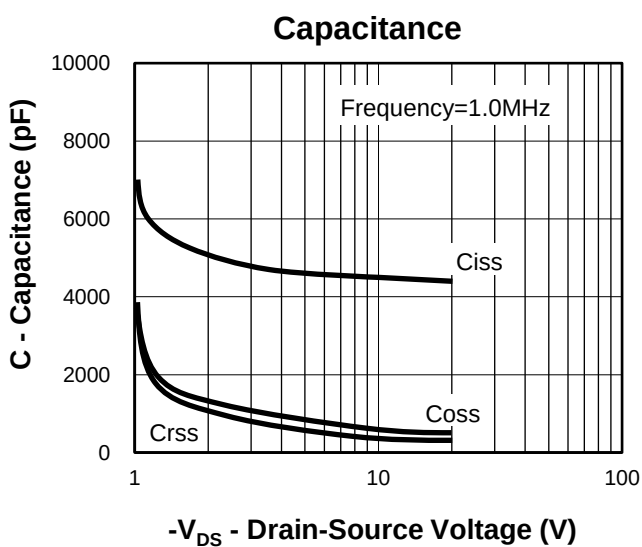
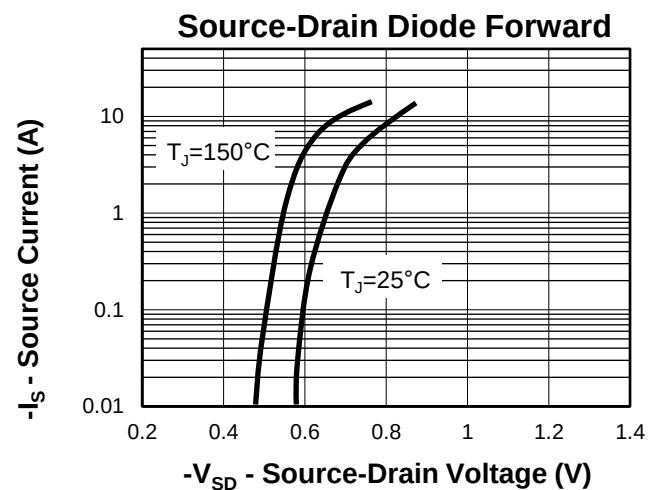
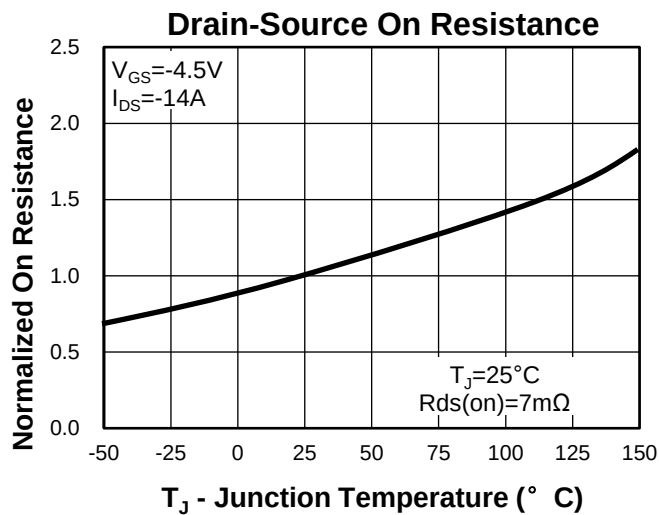
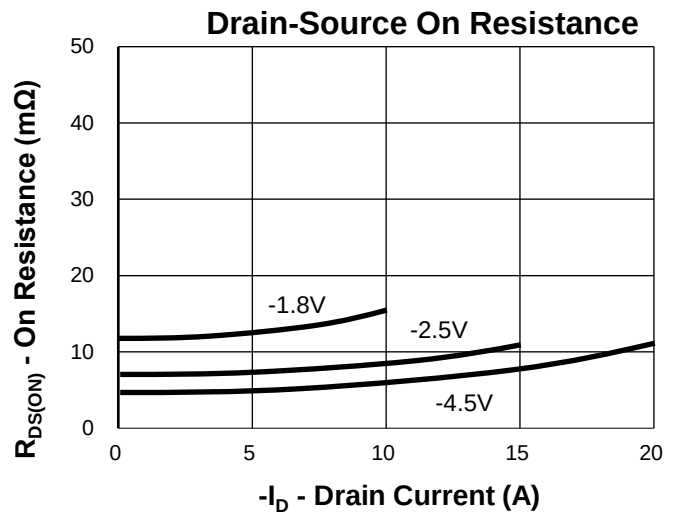
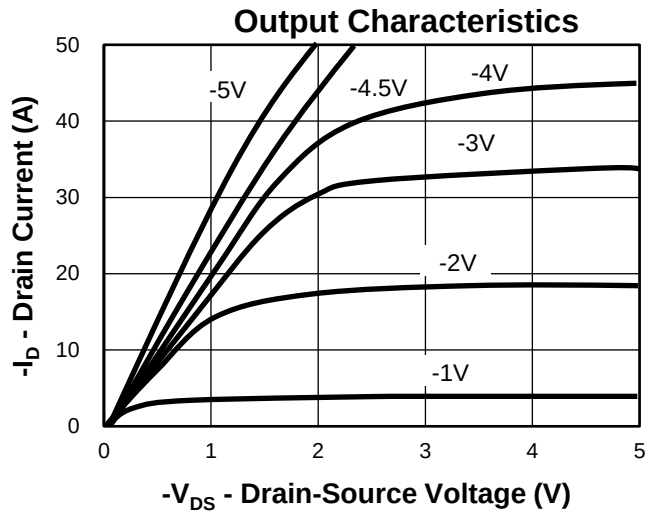
WW =Week.

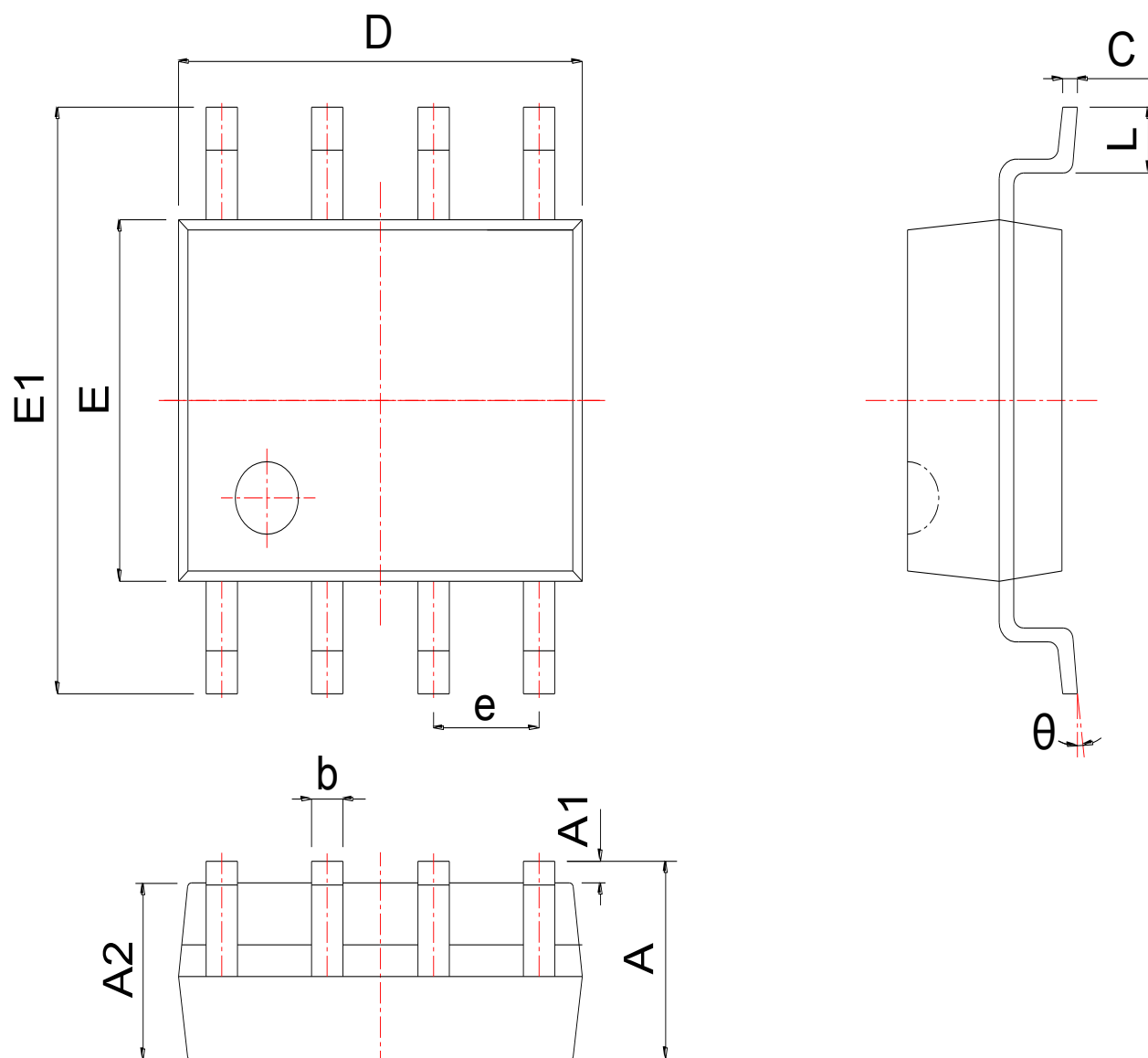
XXX =Lot number.

Typical Characteristics



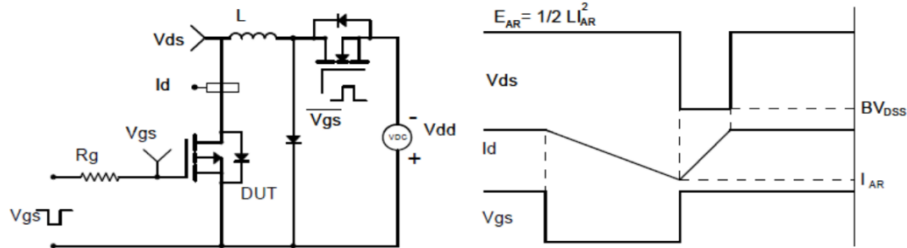
Typical Characteristics



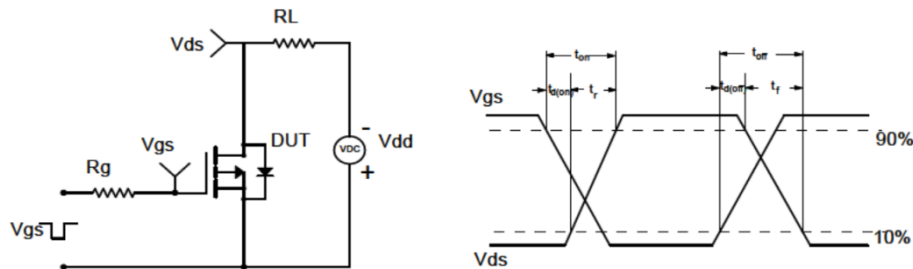
Package Information
SOP8


SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.300	1.525	1.750	0.051	0.060	0.069
A1	0.050	0.150	0.250	0.002	0.006	0.010
A2	1.350	1.450	1.550	0.053	0.057	0.061
b	0.330	0.420	0.510	0.013	0.017	0.020
c	0.170	0.210	0.250	0.007	0.008	0.010
D	4.700	4.900	5.100	0.185	0.193	0.201
E	3.800	3.900	4.000	0.150	0.154	0.157
E1	5.800	6.000	6.200	0.228	0.236	0.244
e	1.270 BSC			0.050 BSC		
L	0.400	0.835	1.270	0.016	0.033	0.050
θ	0°		8°	0°		8°

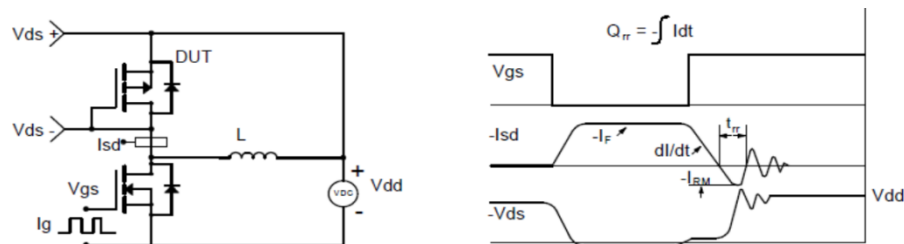
Avalanche Test Circuit and Waveforms



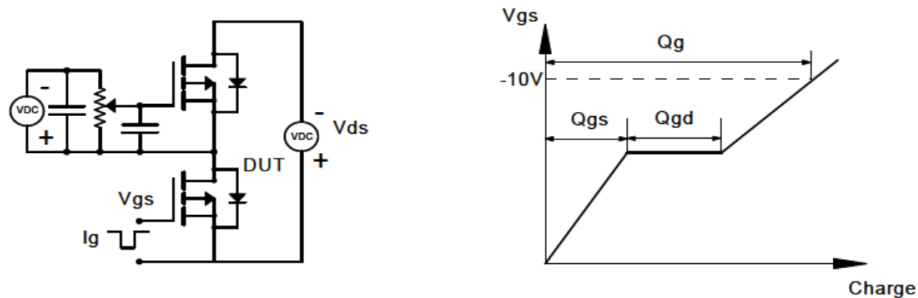
Switching Time Test Circuit and Waveforms



Diode Recovery Test Circuit and Waveforms



Gate Charge Test Circuit and Waveform



Customer Service

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