

Features

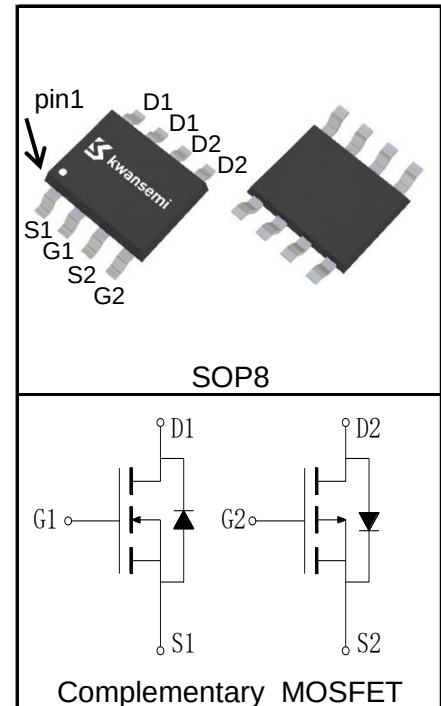
- N-Channel
40V/6.6A,
 $R_{DS(ON)} = 25m\Omega (Typ.) @ V_{GS}=10V$
 $R_{DS(ON)} = 32m\Omega (Typ.) @ V_{GS}=4.5V$
- P-Channel
-40V/-6.6A,
 $R_{DS(ON)} = 28m\Omega (Typ.) @ V_{GS}=-10V$
 $R_{DS(ON)} = 40m\Omega (Typ.) @ V_{GS}=-4.5V$
- Very low on-resistance
- Fast Switching

Applications

- Load Switch



Pin Description



Absolute Maximum Ratings

Symbol	Parameter		N-Channel	P-Channel	Unit
Common Ratings (T _A =25°C Unless Otherwise Noted)					
V _{DSS}	Drain-Source Voltage		40	-40	V
V _{GSS}	Gate-Source Voltage		±20	±20	
T _{Jmax}	Maximum Junction Temperature		150	150	°C
T _J ,T _{STG}	Operating and Storage Temperature Range		-55 to 150	-55 to 150	°C
I _S	Diode Continuous Forward Current	T _A =25°C	1.6	-1.6	A
Mounted on Large Heat Sink					
I _{DP} ^①	300μs Pulse Drain Current Tested	T _A =25°C	26	-26	A
I _D ^②	Continuous Drain Current(V _{GS} =±10V)	T _A =25°C	6.6	-6.6	A
		T _A =70°C	5.3	-5.3	
P _D	Maximum Power Dissipation	T _A =25°C	2	2	W
		T _A =70°C	1.3	1.3	
R _{θJL}	Thermal Resistance-Junction to Lead		40	40	°C/W
R _{θJA} ^③	Thermal Resistance-Junction to Ambient		62.5	62.5	°C/W
Drain-Source Avalanche Ratings					
E _{AS} ^④	Avalanche Energy, Single Pulsed		16	72	mJ

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

Symbol	Parameter	Test Condition	KS4628HA			Unit	
			Min.	Typ.	Max.		
Static Characteristics							
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	N	40			V
		V _{GS} =0V, I _{DS} =-250μA	P	-40			
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =40V, V _{GS} =0V	N			1	μA
				T _J =125°C			
		V _{DS} =-40V, V _{GS} =0V	P			-1	
				T _J =125°C			
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	N	1.1	1.6	2.3	V
		V _{DS} =V _{GS} , I _{DS} =-250μA	P	-1.1	-1.6	-2.3	
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	N			±100	nA
		V _{GS} =±20V, V _{DS} =0V	P			±100	
R _{DS(ON)} ^⑤	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =10A	N		25	30	mΩ
		V _{GS} =-10V, I _{DS} =-10A	P		28	35	
		V _{GS} =4.5V, I _{DS} =6A	N		32	40	
		V _{GS} =-4.5V, I _{DS} =-6A	P		40	46	
Diode Characteristics							
V _{SD} ^⑤	Diode Forward Voltage	I _{SD} =10A, V _{GS} =0V	N		0.89	1.2	V
		I _{SD} =-10A, V _{GS} =0V	P		-0.91	-1.2	
t _{rr}	Reverse Recovery Time	N-Channel I _{SD} =10A, dI _{SD} /dt=100A/μs	N		10		ns
			P		17		
Q _{rr}	Reverse Recovery Charge	P-Channel I _{SD} =-10A, dI _{SD} /dt=100A/μs	N		8		nC
			P		11		
Dynamic Characteristics ^⑥							
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	N		2.9		Ω
			P		6.9		
C _{iss}	Input Capacitance	N-Channel V _{GS} =0V, V _{DS} =20V, Frequency=1.0MHz	N		545		pF
			P		1360		
C _{oss}	Output Capacitance		N		60		
			P		120		
C _{rss}	Reverse Transfer Capacitance	P-Channel V _{GS} =0V, V _{DS} =-20V, Frequency=1.0MHz	N		40		
			P		100		

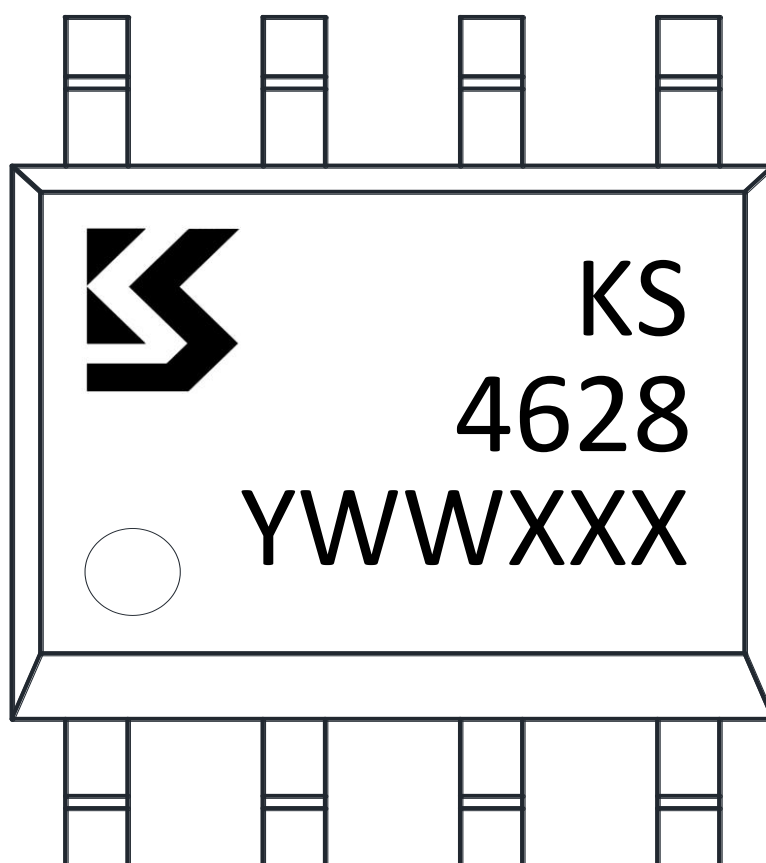
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Test Condition	KS4628HA			Unit	
			Min.	Typ.	Max.		
Dynamic Characteristics ^⑥							
t _{d(ON)}	Turn-on Delay Time	N-Channel V _{DD} =20V, I _{DS} =10A, V _{GEN} =10V, R _G =3Ω	N		8		ns
t _r	Turn-on Rise Time		P		9		
			N		5		
t _{d(OFF)}	Turn-off Delay Time		P		7		
		N		19			
t _f	Turn-off Fall Time	P		39			
		N		6			
		P		11			
Gate Charge Characteristics ^⑥							
Q _g	Total Gate Charge	N-Channel V _{DS} =20V, V _{GS} =10V, I _{DS} =10A	N		11		nC
Q _{gs}	Gate-Source Charge		P		25		
		N		1.5			
Q _{gd}	Gate-Drain Charge	P-Channel V _{DS} =-20V, V _{GS} = -10V, I _{DS} =-10A	P		4.2		
		N		2.2			
		P		5.9			

- 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 $T_J = 25^{\circ}\text{C}$, N Channel: $I_{ASmax} = 8\text{A}$, $L=0.5\text{mH}$, $V_{DD} = 20\text{V}$, $R_G = 25\Omega$, $V_{GS}=10\text{V}$, Part not recommended for use above this value. P-Chanel: $I_{ASmax} = -17\text{A}$, $L=0.5\text{mH}$, $V_{DD} = -20\text{V}$, $R_G = 25\Omega$, $V_{GS}=-10\text{V}$, Part not recommended for use above this value.
 - ⑤ Pulse test; Pulse width $\leq 300\mu\text{s}$, 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
KS4628HA	SOP8	Tape&Reel	3000	13"	12mm

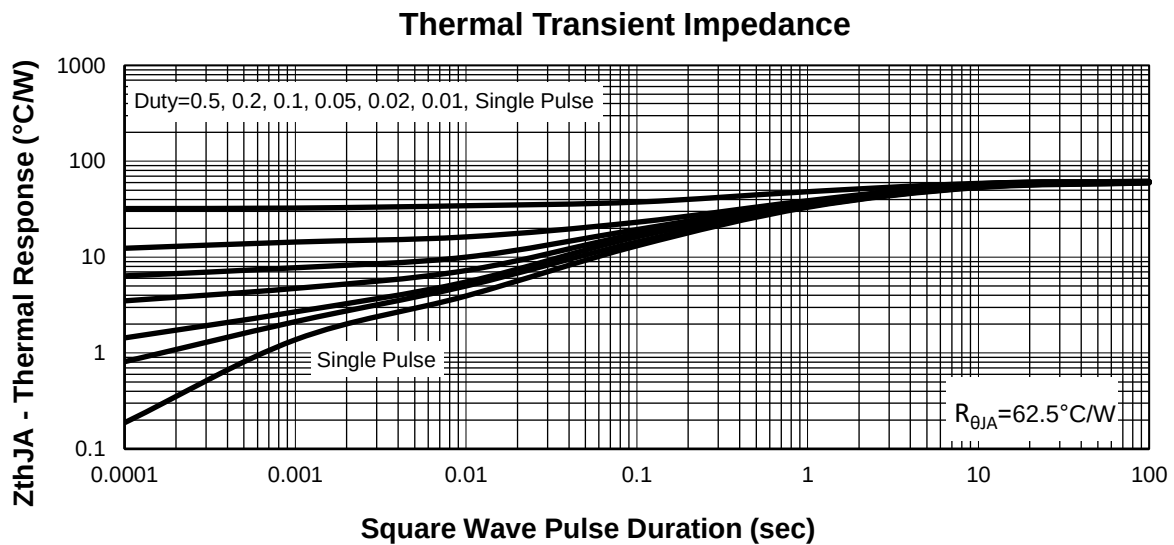
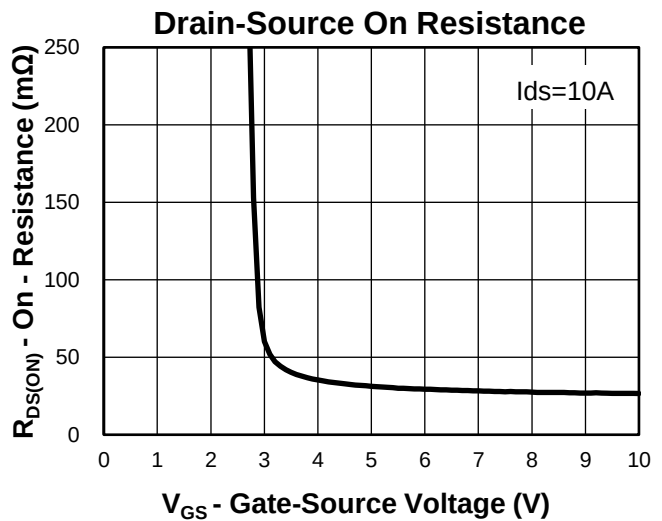
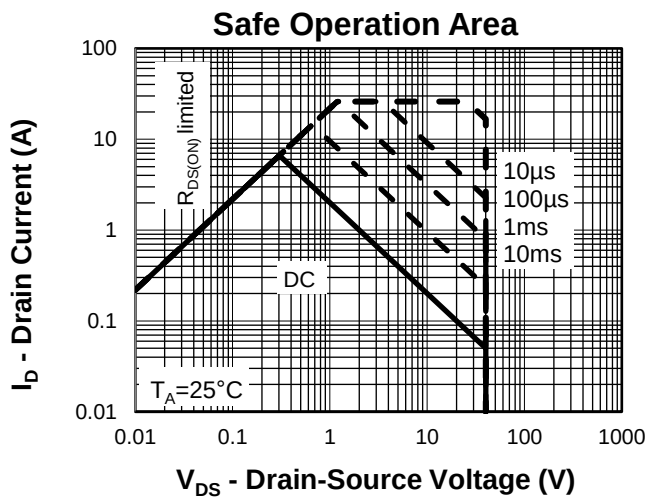
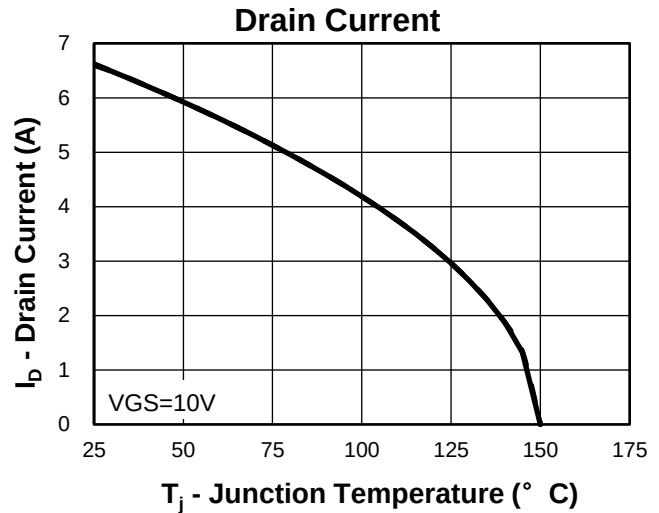
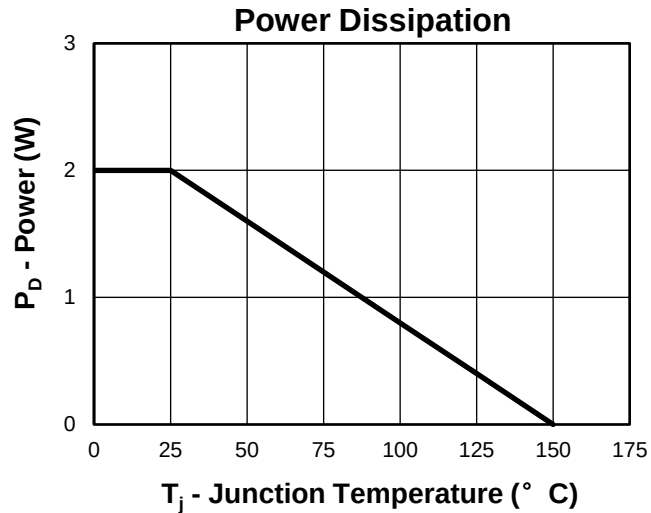


1st Line: Kwansemi LOGO, Kwansemi Code(KS)

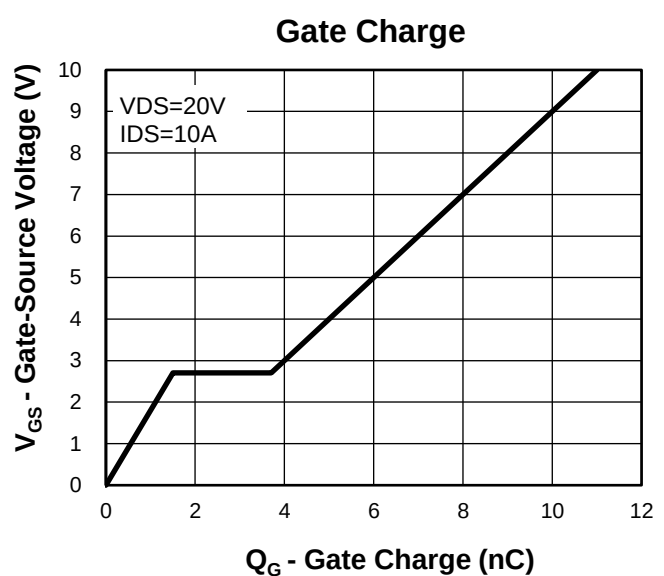
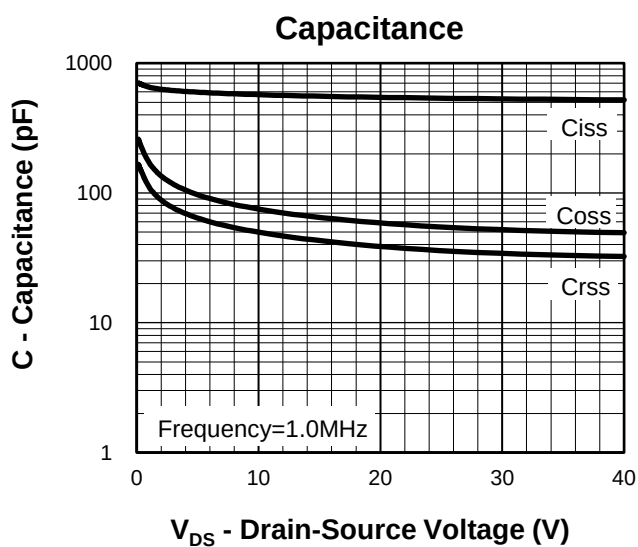
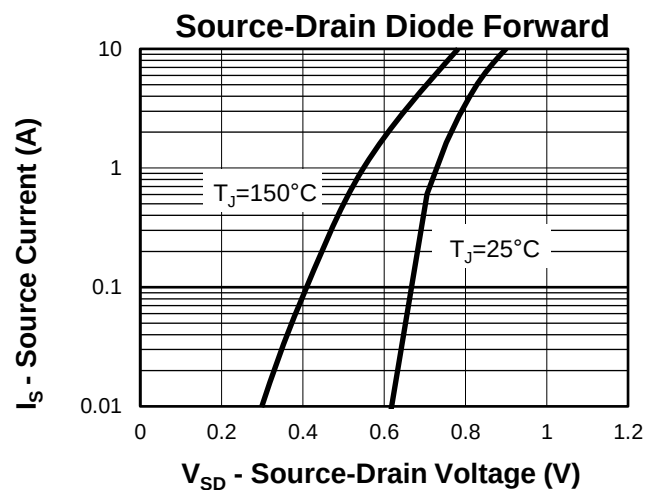
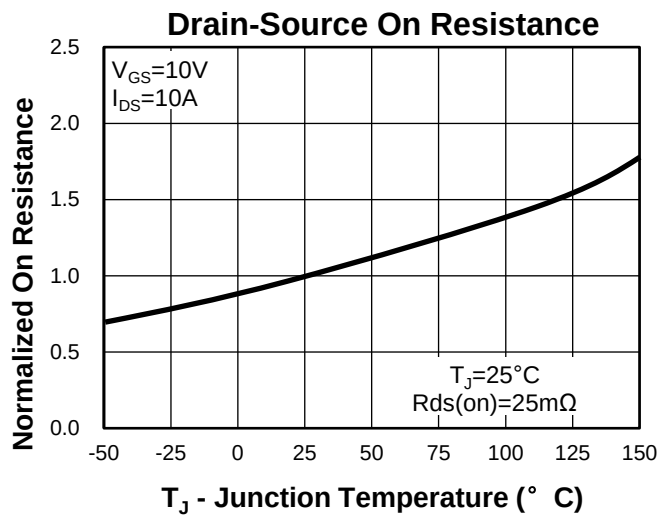
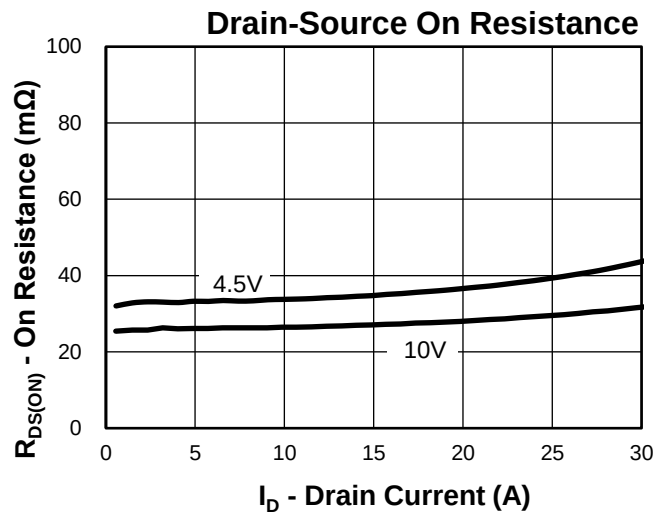
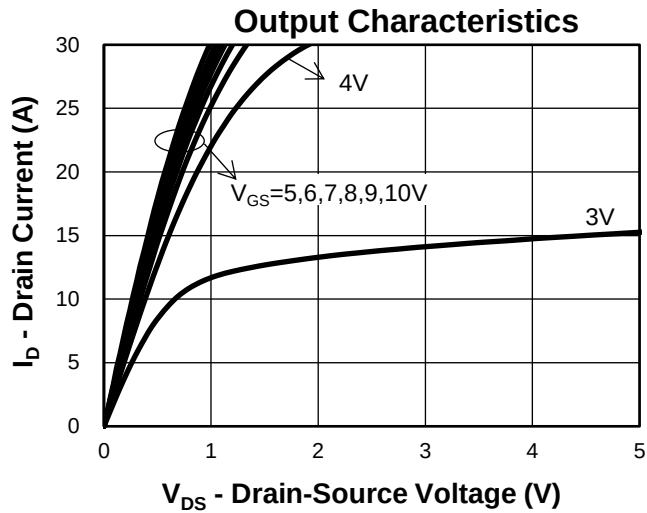
2nd Line: Part Number(4628)

3rd Line: Lot Number(YWWXXX)

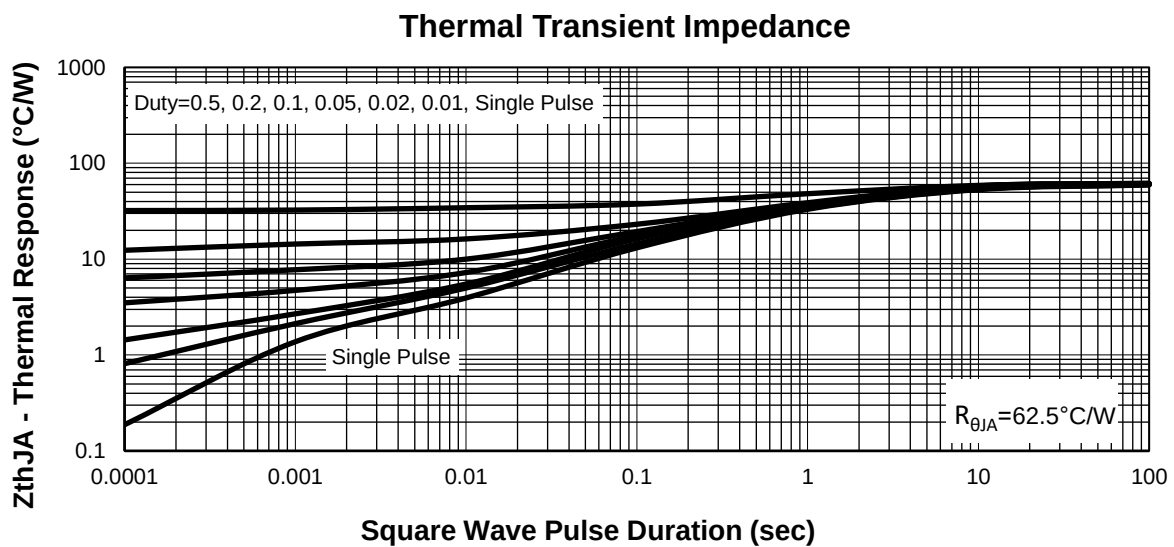
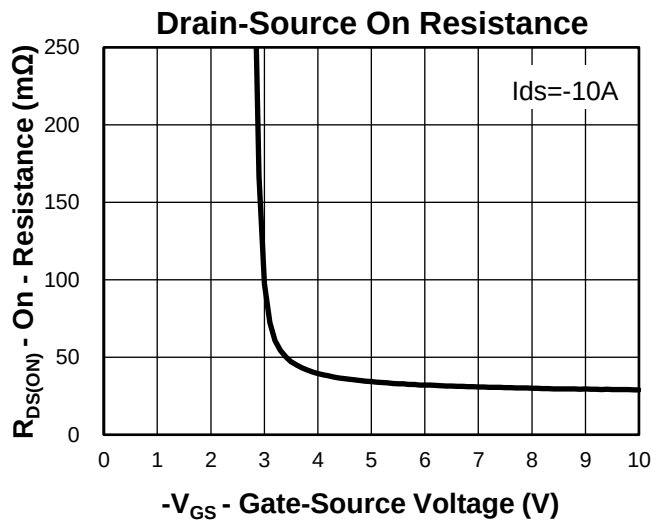
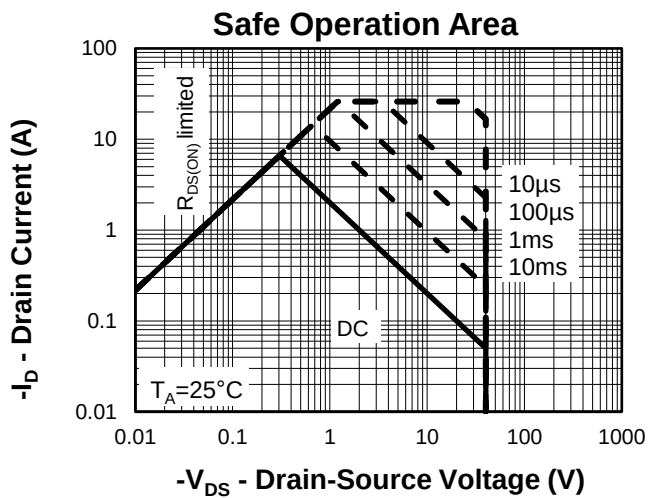
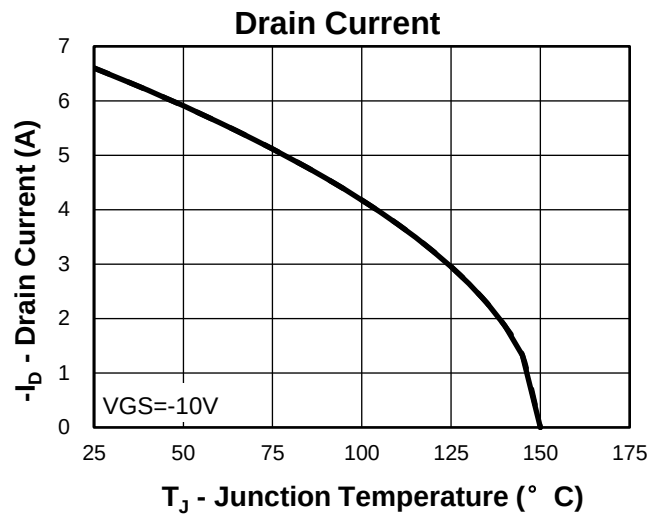
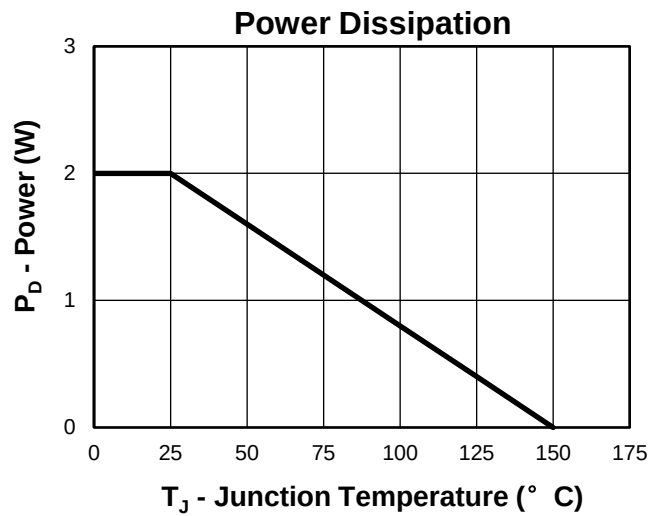
Typical Characteristics(N-Channel)



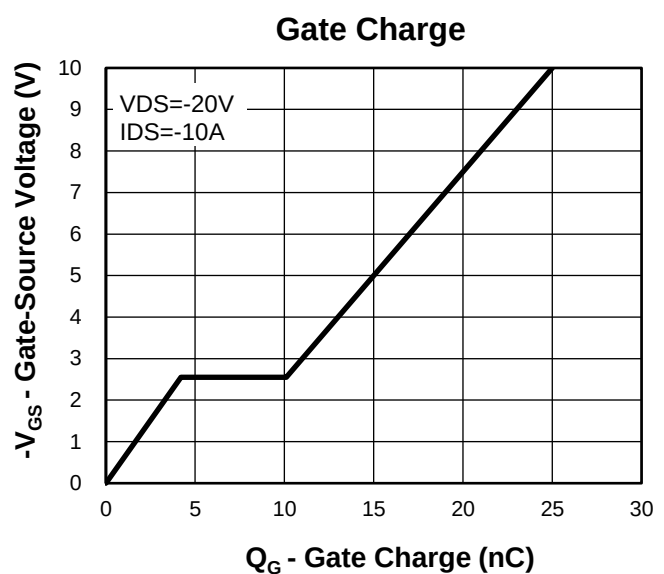
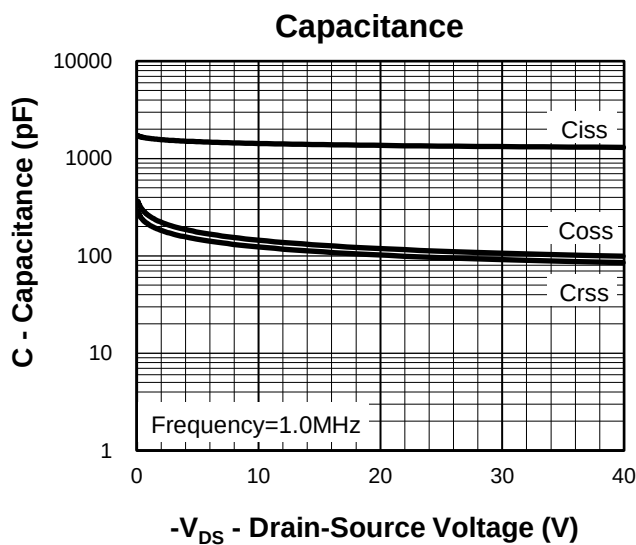
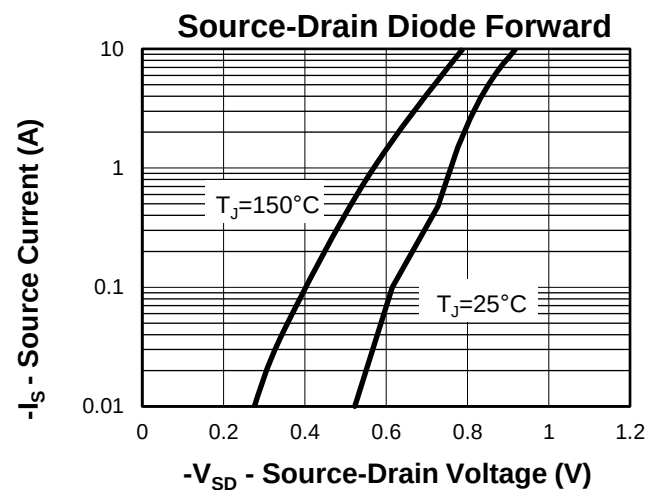
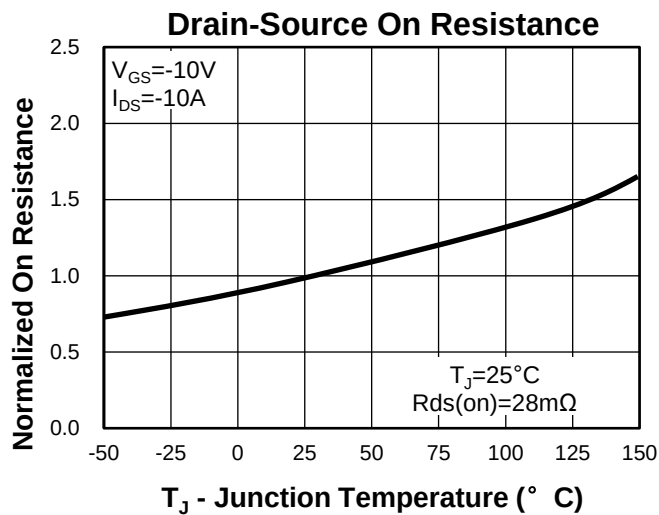
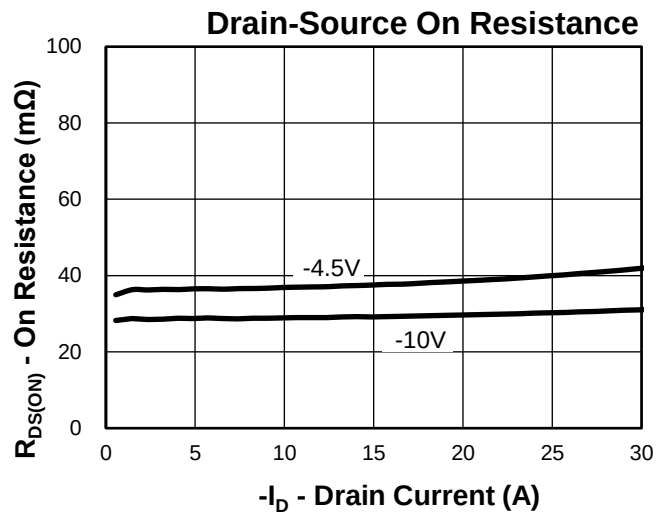
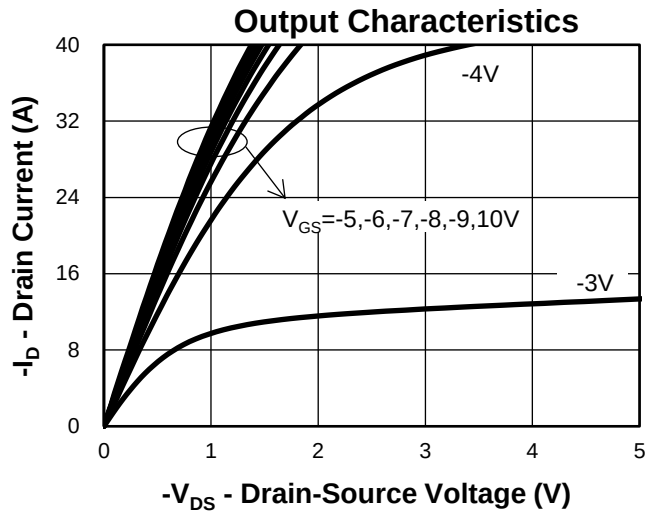
Typical Characteristics(N-Channel)



Typical Characteristics(P-Channel)

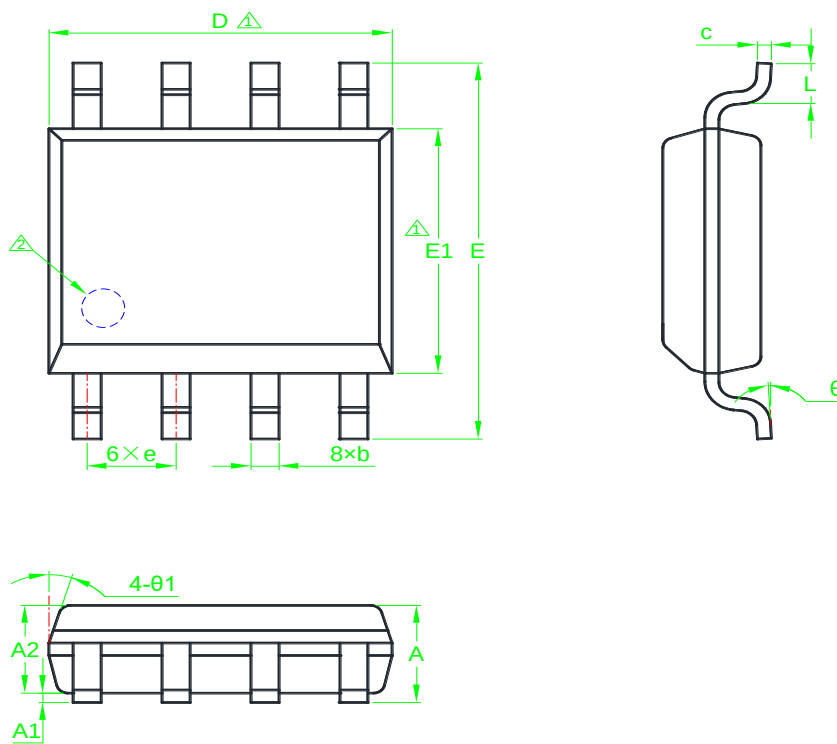


Typical Characteristics(P-Channel)



Package Information

SOP8

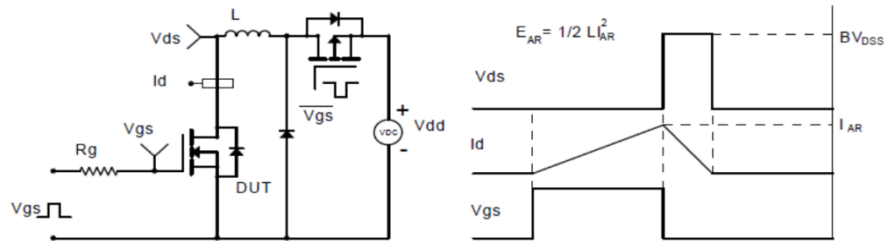


SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.35	*	1.75	0.053	*	0.069
A1	0.10	*	0.25	0.004	*	0.010
A2	1.25	1.45	1.65	0.049	0.057	0.065
b	0.33	*	0.51	0.013	*	0.020
c	0.15	*	0.25	0.006	*	0.010
D	4.70	4.90	5.10	0.185	0.193	0.201
E	5.80	6.00	6.30	0.228	0.236	0.248
E1	3.80	3.90	4.00	0.150	0.154	0.157
e	1.27BSC			0.050BSC		
L	0.40	*	1.27	0.016	*	0.050
θ	0°	*	8°	0°	*	8°
θ 1	5°	*	15°	5°	*	15°

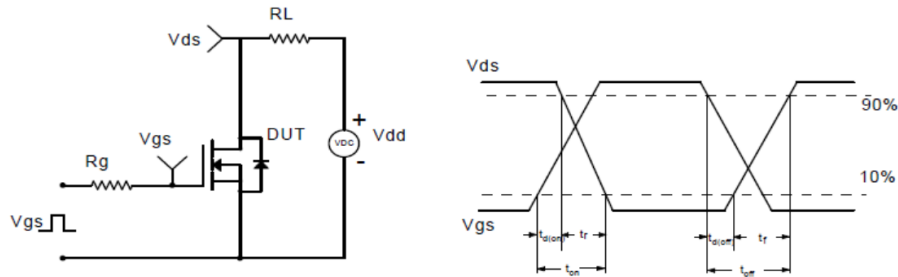
① Dimensions D and E1 do not include mold flash protrusions or gate burrs.

② The existence and size of demolding hole are variable depending on mold.

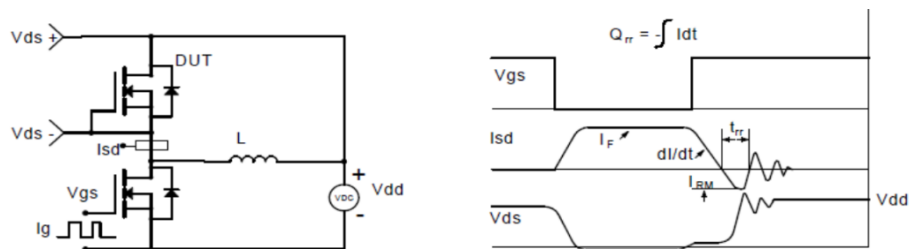
Avalanche Test Circuit and Waveforms(N-Channel)



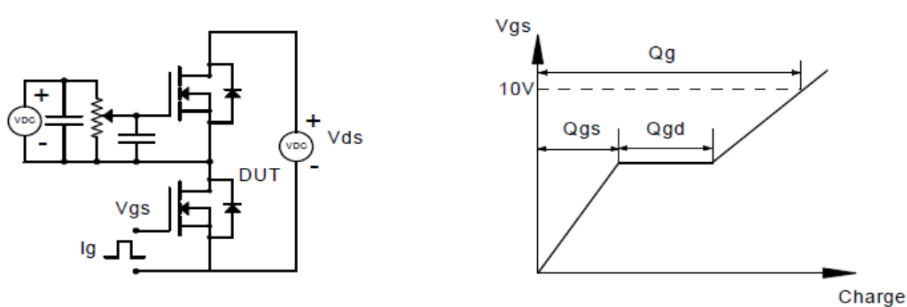
Switching Time Test Circuit and Waveforms(N-Channel)



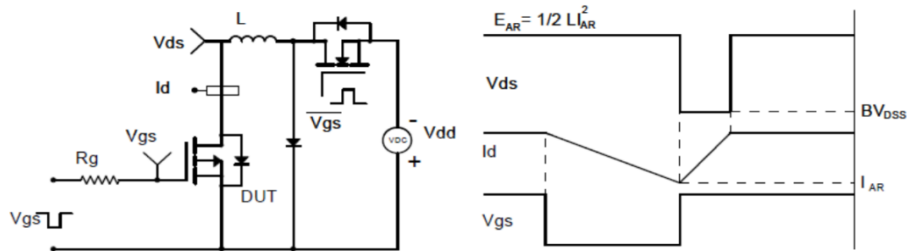
Diode Recovery Test Circuit and Waveforms(N-Channel)



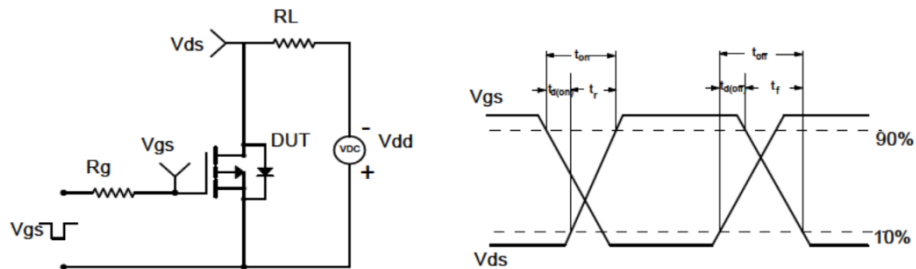
Gate Charge Test Circuit and Waveform(N-Channel)



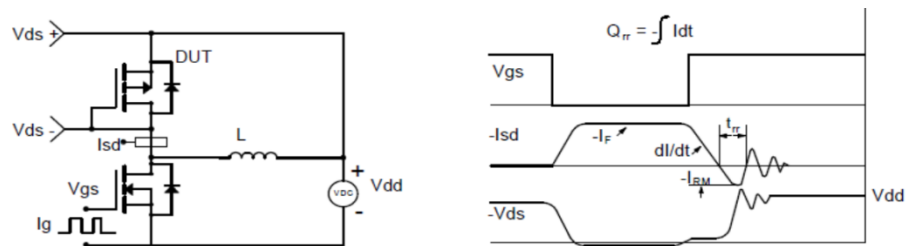
Avalanche Test Circuit and Waveforms(P-Channel)



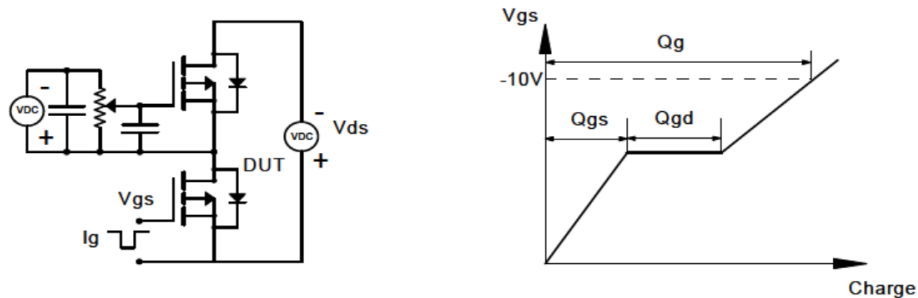
Switching Time Test Circuit and Waveforms(P-Channel)



Diode Recovery Test Circuit and Waveforms(P-Channel)



Gate Charge Test Circuit and Waveform(P-Channel)



Customer Service

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