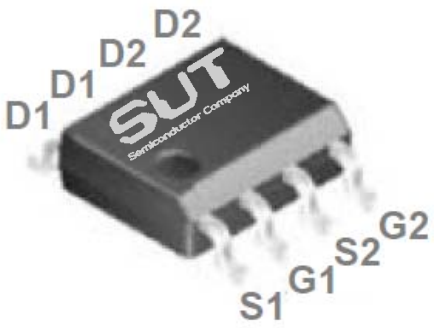
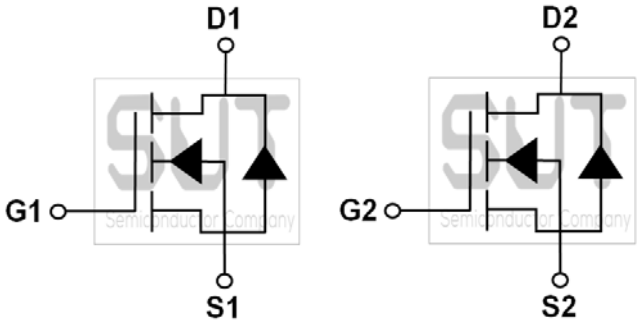
Version 1.0 Date 2019.03.27 Datasheet

Dual N-Channel 30-$V_{(D-S)}$ MOSFET

PRODUCT SUMMARY		
B_{VDSS}(V)	$R_{DS(on)}$ (mΩ)(MAX)	I_D(A)
30	20@V_{GS}=10V	7.5

Dual SOP8 Pin Configuration





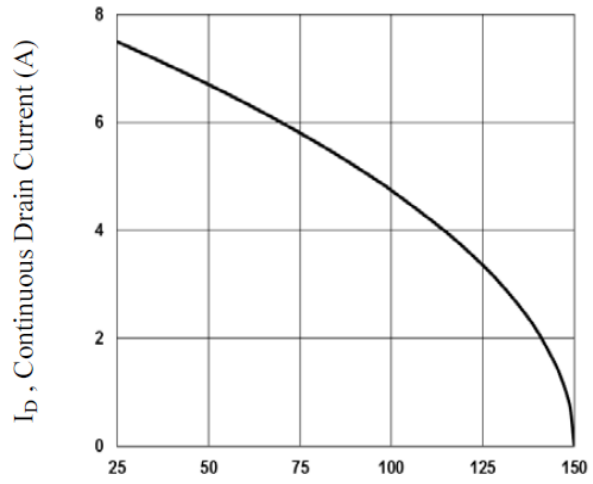
ABSOLUTE MAXIMUM RATINGS(T_C=25℃ UNLESS OTHERWISE NOTED)			
Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous (T_C=25℃)	I_D	7.5	A
Drain Current-Continuous (T_C=100℃)		4.8	A
Drain Current-Pulsed[1]	I_{DM}	30	A
Single Pulse Avalanche Energy[2]	EAS	14	mJ
Single Pulse Avalanche Current[2]	IAS	17	A
Power Dissipation (T_C=25℃)	P_D	2.1	W
Power Dissipation-Derate above 25℃		0.017	W/℃
Storage Temperature Range	T_{STG}	-55 to 150	℃
Operating Junction Temperature Range	T_J	-55 to 150	℃

THERMAL CHARACTERISTICS				
Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction to ambient	$R_{\theta JA}$	---	60	℃/W

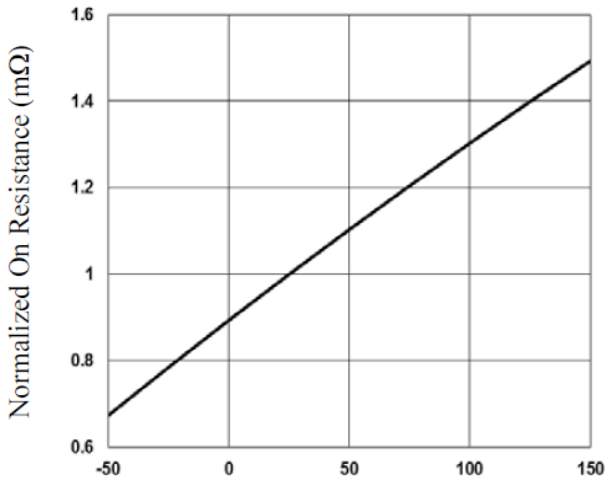
ELECTRICAL CHARACTERISTICS (T_J=25℃ UNLESS OTHERWISE NOTED)						
Parameter	**Symbol**	**Test Condition**	**Min.**	**Typ.**	**Max.**	**Unit**
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V , I_D=250uA	30	---	---	V
BV_{DSS} Temperature Coefficient	$\triangle BV_{DSS}/\triangle T_J$	Reference to 25℃,I_D=1mA	---	0.04	---	V/℃
Drain-Source Leakage Current	I_{DSS}	V_{GS}=0V,V_{DS}=30V, T_J=25℃	---	---	1	uA
		V_{GS}=0V,V_{DS}=24V, T_J=125℃	---	---	10	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA
On Characteristics						
Static Drain-Source On-Resistance[3]	$R_{DS(ON)}$	V_{GS}=10V , I_D=6A	---	15	20	mΩ
		V_{GS}=4.5V , I_D=3A	---	23	30	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS} , I_D=250uA	1.2	1.5	2.5	V
$V_{GS(th)}$ Temperature Coefficient	$\triangle V_{GS(th)}$		---	-4.0	---	mV/℃
Forward Transconductance	gfs	V_{DS}=10V , I_D=6A	---	13	---	S
Dynamic and Switching Characteristics						
Total Gate Charge[3 , 4]	Q_g	V_{GS}=4.5V , V_{DS}=15V , I_D=5A	---	4.1	8	nC
Gate-Source Charge[3 , 4]	Q_{gs}		---	1.0	2.0	
Gate-Drain Charge[3 , 4]	Q_{gd}		---	2.1	4.0	
Turn-On Delay Time[3 , 4]	$T_{d(on)}$	V_{GS}=10V , V_{DD}=15V , R_G=6Ω , I_D=1A	---	2.6	5.0	ns
Rise Time[3 , 4]	T_r		---	7.2	14	
Turn-Off Delay Time[3 , 4]	$T_{d(off)}$		---	15.8	30	
Fall Time[3 , 4]	T_f		---	4.6	9.0	
Input Capacitance	C_{iss}	V_{GS}=0V , V_{DS}=25V , F=1MHz	---	345	500	pF
Output Capacitance	C_{oss}		---	55	80	
Reverse Transfer Capacitance	C_{rss}		---	32	55	
Gate resistance	R_g	V_{GS}=0V,V_{DS}=0V,F=1MHz	---	3.2	6.4	Ω
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current	I_S	V_G=V_D=0V,Force Current	---	---	7.5	A
Pulsed Source Current[3]	I_{SM}		---	---	30	A
Diode Forward Voltage[3]	V_{SD}	V_{GS}=0V , I_S=1A , T_J=25℃	---	---	1.0	V
Reverse Recovery Time	t_{rr}	V_{GS}=0V , I_S=1A , dI/dt=100A/μs , T_J=25℃	---	---	---	ns
Reverse Recovery Charge	Q_{rr}		---	---	---	nC

Note :

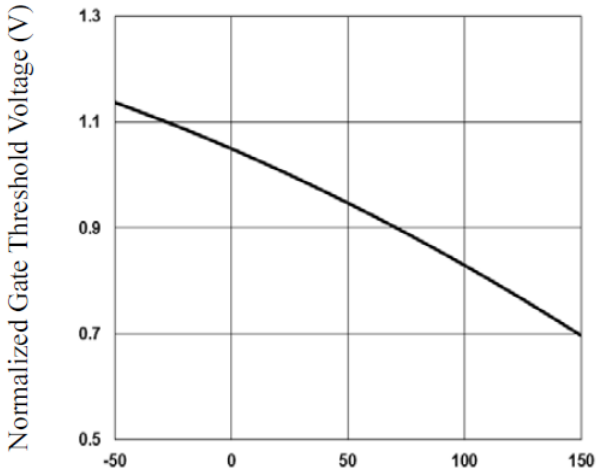
1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. V_{GS}=10V , V_{DD}=25V , L=0.1mH , I_{AS}=17A , R_G=25Ω , Starting T_J=25℃.
3. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%.
4. Essentially independent of operating temperature.



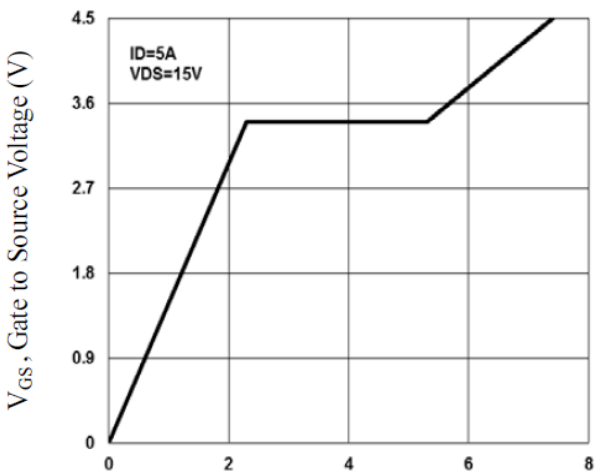
Continuous Drain Current vs. T_C



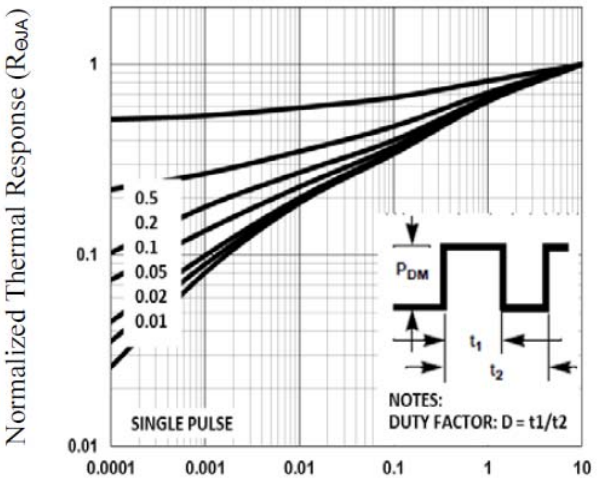
Normalized $R_{DS(ON)}$ vs. T_J



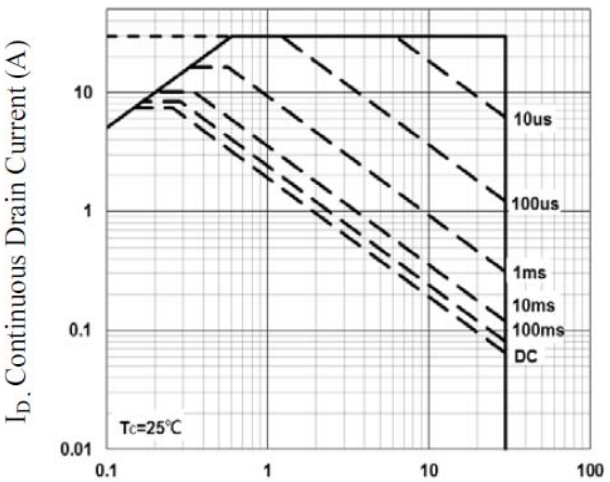
Normalized V_{th} vs. T_J



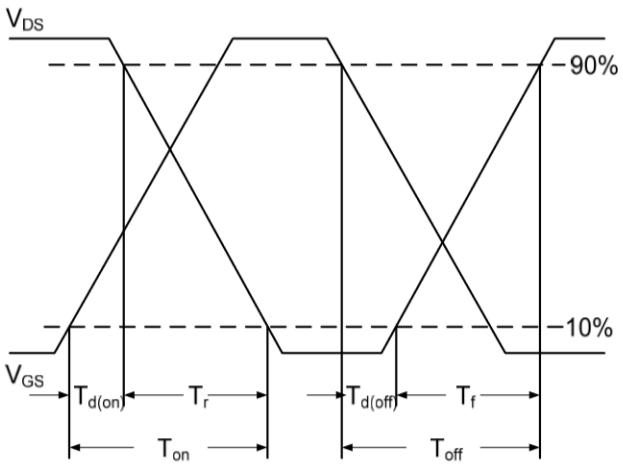
Gate Charge Waveform



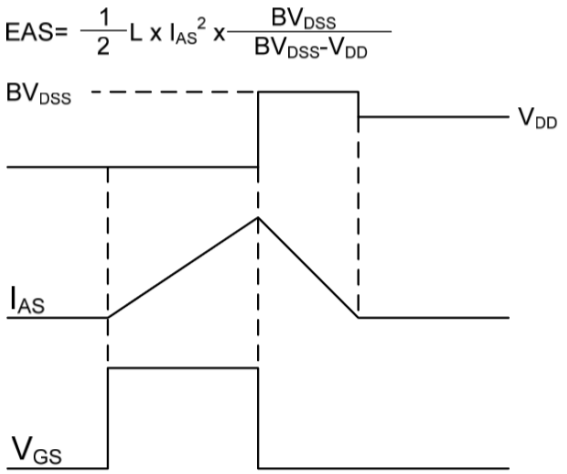
Normalized Transient Response



Maximum Safe Operation Area

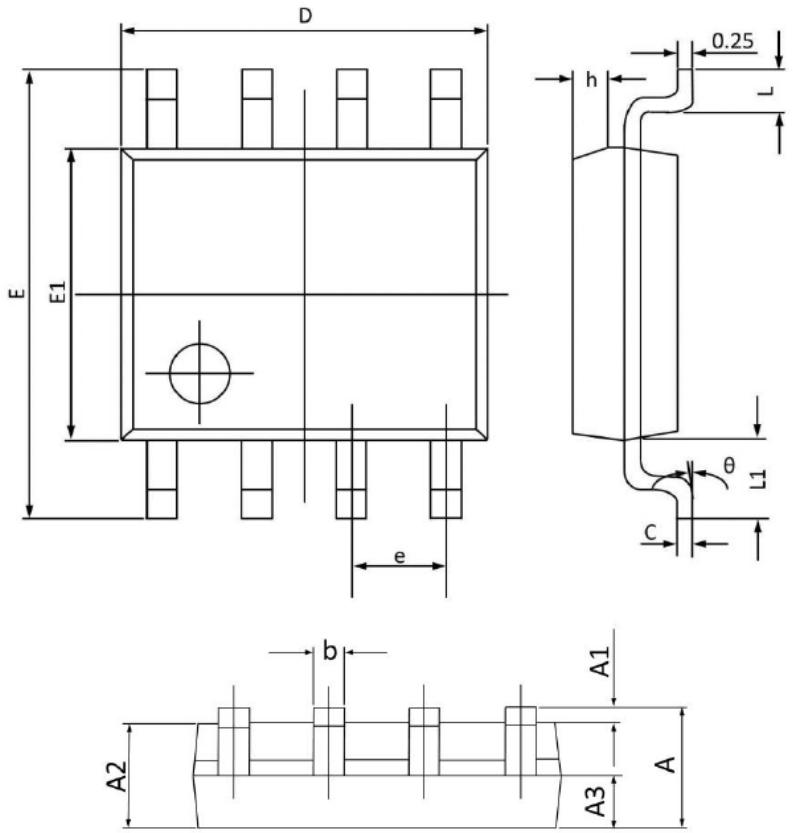


Switching Time Waveform



EAS Waveform

Dual SOP8 PACKAGE INFORMATION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	1.750	1.350	0.068	0.053
A1	0.250	0.100	0.009	0.004
A2	1.500	1.300	0.059	0.052
A3	0.700	0.600	0.027	0.024
b	0.480	0.390	0.018	0.016
c	0.260	0.210	0.010	0.009
D	5.100	4.700	0.200	0.186
E	6.200	5.800	0.244	0.229
E1	4.100	3.700	0.161	0.146
e	1.270(BSC)		0.050(BSC)	
h	0.500	0.250	0.019	0.010
L	0.800	0.500	0.031	0.019
L1	1.050(BSC)		0.041(BSC)	
θ	8°	0°	8°	0°