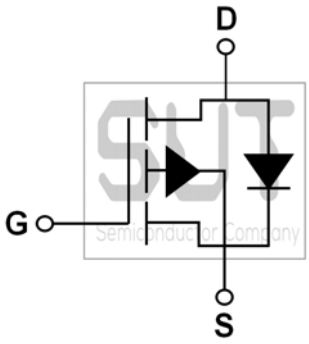
Version 1.0 Date 2019.03.27 Datasheet

P-Channel 100-$V_{(D-S)}$ MOSFET

PRODUCT SUMMARY		
B_{VDSS}(V)	$R_{DS(on)}$ (mΩ)(MAX)	I_D(A)
-100	45@V_{GS}=-10V	-35

TO220 Pin Configuration



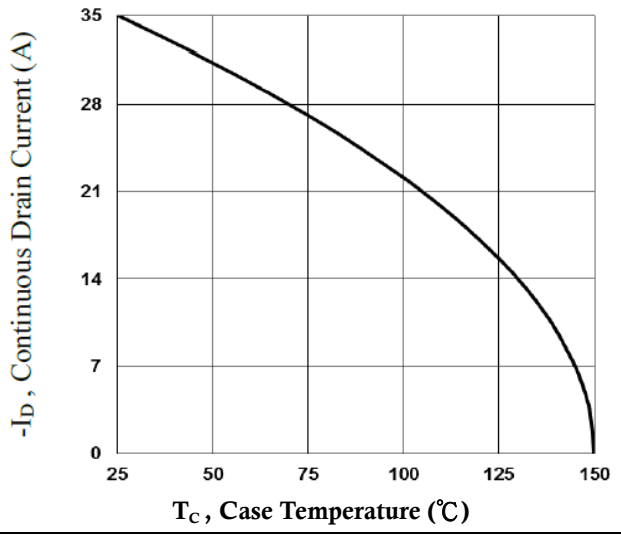
ABSOLUTE MAXIMUM RATINGS(T_C=25℃ UNLESS OTHERWISE NOTED)			
Parameter	**Symbol**	**Rating**	**Units**
Drain-Source Voltage	V_{DS}	-100	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous (T_C=25℃)	I_D	-35	A
Drain Current-Continuous (T_C=100℃)		-22	A
Drain Current-Pulsed[1]	I_{DM}	-140	A
Single Pulse Avalanche Energy[2]	EAS	180	mJ
Single Pulse Avalanche Current[2]	IAS	-60	A
Power Dissipation (T_C=25℃)	P_D	114	W
Power Dissipation-Derate above 25℃		0.91	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	$R_{\theta JA}$	---	62	℃/W
Thermal Resistance Junction to Case	$R_{\theta JC}$	---	1.1	℃/W

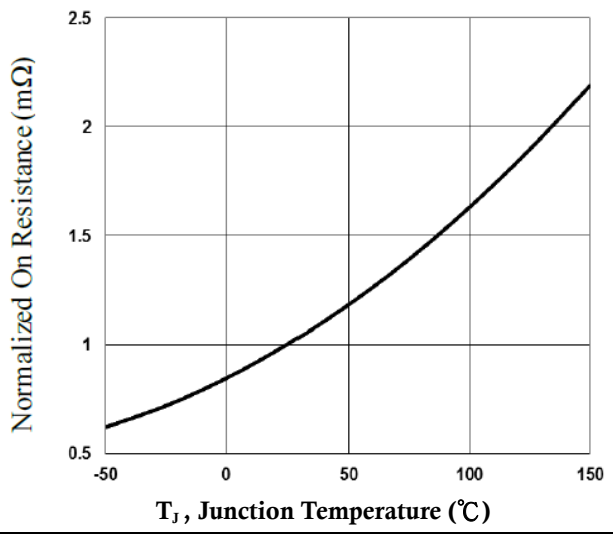
ELECTRICAL CHARACTERISTICS (T_J=25℃ UNLESS OTHERWISE NOTED)						
Parameter	**Symbol**	**Test Condition**	**Min.**	**Typ.**	**Max.**	**Unit**
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V , I_D=-250uA	-100	---	---	V
Drain-Source Leakage Current	I_{DSS}	V_{GS}=0V,V_{DS}=-100V,T_J=25℃	---	---	-1	uA
		V_{GS}=0V,V_{DS}=-80V,T_J=85℃	---	---	-10	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA
On Characteristics						
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V , I_D=-15A	---	36	45	mΩ
		V_{GS}=-4.5V , I_D=-10A	---	40	55	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS} , I_D =-250uA	-1.2	---	-2.5	V
Forward Transconductance	gfs	V_{DS}=-10V , I_D=-5A	---	22	---	S
Dynamic and Switching Characteristics						
Total Gate Charge[3 , 4]	Q_g	V_{GS}=-10V , V_{DS}=-50V , I_D=-10A	---	98	150	nC
Gate-Source Charge[3 , 4]	Q_{gs}		---	16.2	30	
Gate-Drain Charge[3 , 4]	Q_{gd}		---	13.8	26	
Turn-On Delay Time[3 , 4]	$T_{d(on)}$	V_{GS}=-10V , V_{DD}=-50V , R_G=25Ω , I_D=-5A	---	58	105	ns
Rise Time[3 , 4]	T_r		---	24	50	
Turn-Off Delay Time[3 , 4]	$T_{d(off)}$		---	215	450	
Fall Time[3 , 4]	T_f		---	94	180	
Input Capacitance	C_{iss}	V_{GS}=0V , V_{DS}=-25V , F=1MHz	---	6315	9000	pF
Output Capacitance	C_{oss}		---	220	330	
Reverse Transfer Capacitance	C_{rss}		---	50	100	
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current	I_S	V_G=V_D=0V,Force Current	---	---	-35	A
Pulsed Source Current	I_{SM}		---	---	-70	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V , I_S=-1A ,T_J=25℃	---	---	-1.0	V

Note :

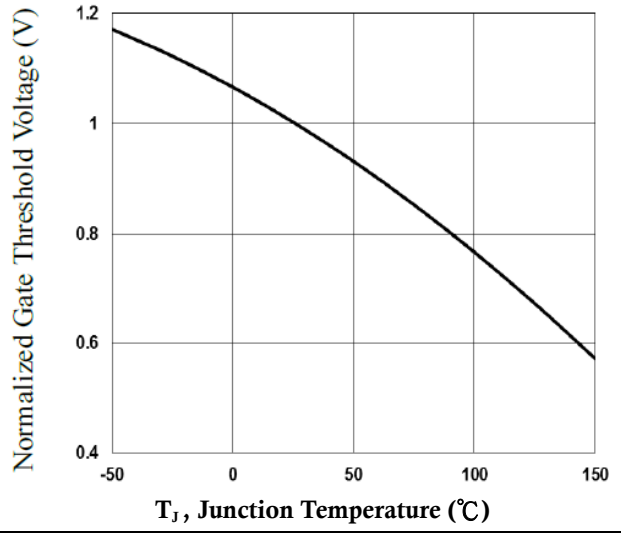
1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. V_{GS}=-10V , V_{DD}=-50V , L=0.1mH , I_{AS}=-60A , R_G=25Ω , Starting T_J=25℃.
3. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%.
4. Essentially independent of operating temperature.



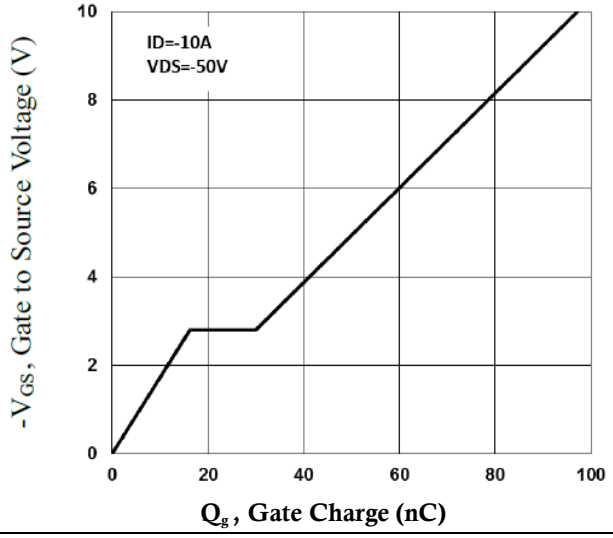
Continuous Drain Current vs. T_C



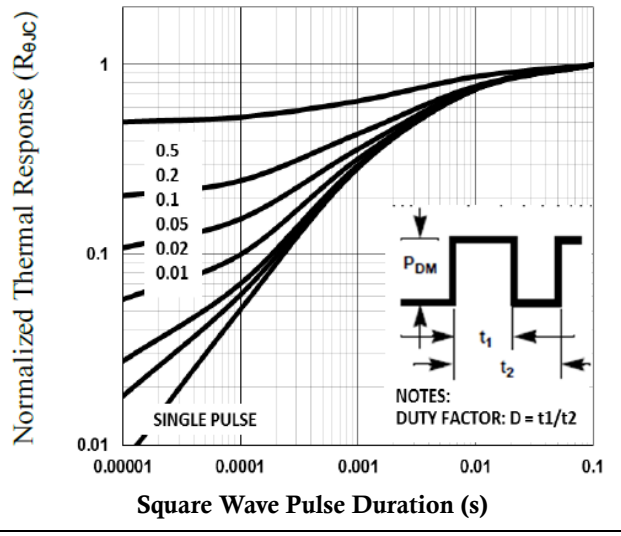
Normalized $R_{DS(ON)}$ vs. T_J



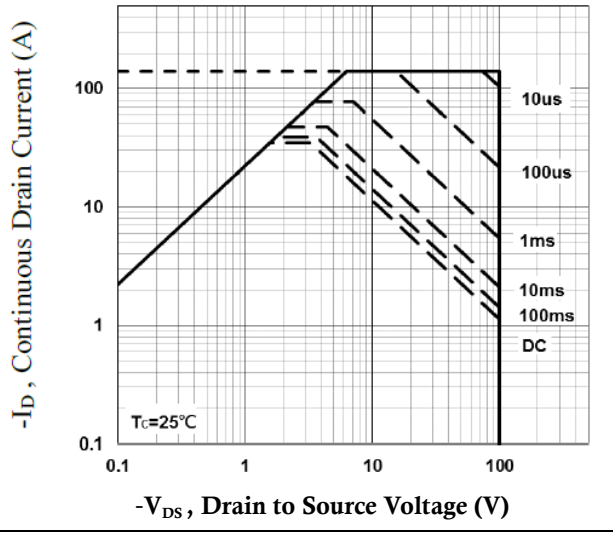
Normalized V_{th} vs. T_J



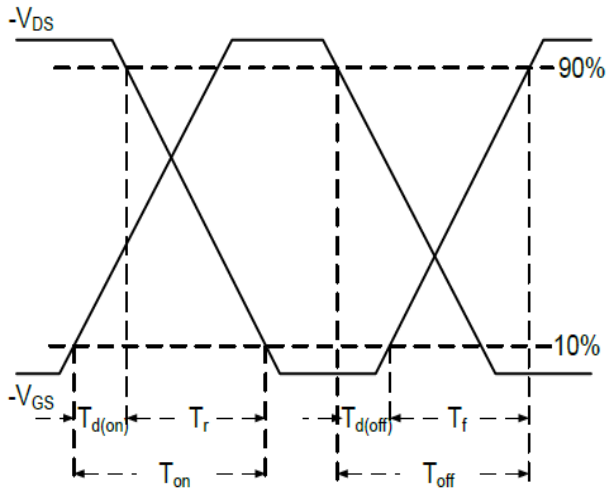
Gate Charge Waveform



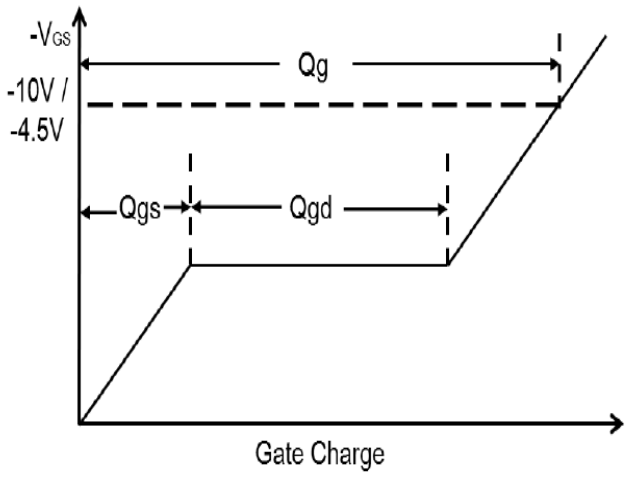
Normalized Transient Impedance



Maximum Safe Operation Area

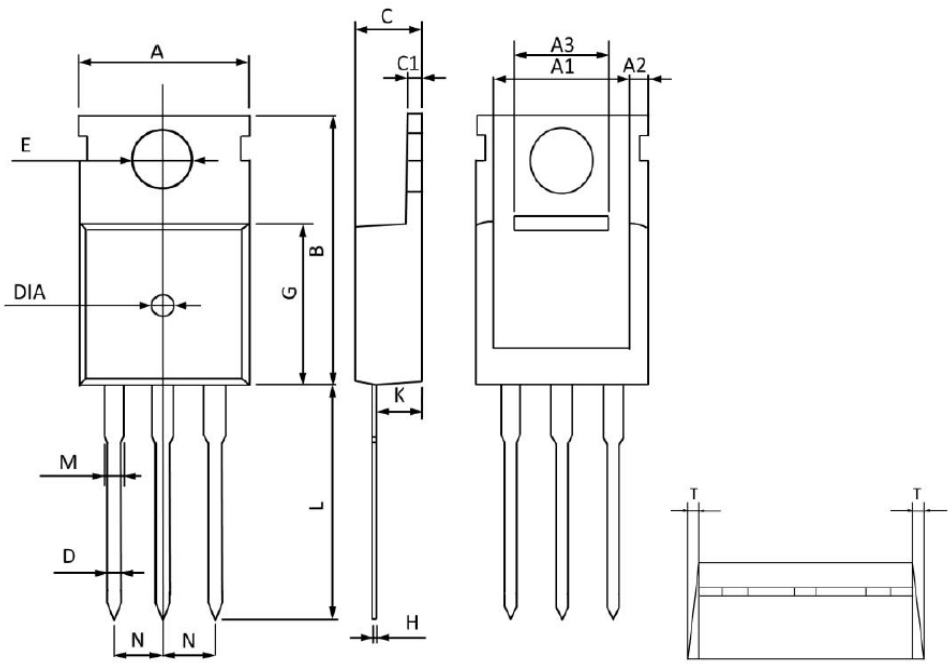


Switching Time Waveform



Gate Charge Waveform

TO220 PACKAGE INFORMATION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	10.300	9.700	0.406	0.382
A1	8.840	8.440	0.348	0.332
A2	1.250	1.050	0.049	0.041
A3	5.300	5.100	0.209	0.201
B	16.200	15.400	0.638	0.606
C	4.680	4.280	0.184	0.169
C1	1.500	1.100	0.059	0.043
D	1.000	0.600	0.039	0.024
E	3.800	3.400	0.150	0.134
G	9.300	8.700	0.366	0.343
H	0.600	0.400	0.024	0.016
K	2.700	2.100	0.106	0.083
L	13.600	12.800	0.535	0.504
M	1.500	1.100	0.059	0.043
N	2.590	2.490	0.102	0.098
T	W0.350		W0.014	
DIA	Ø1.500(TYP)	Deep0.200(TYP)	Ø0.059(TYP)	Deep0.008(TYP)