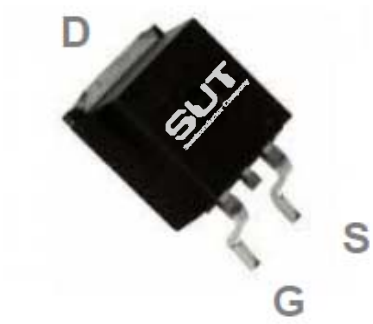
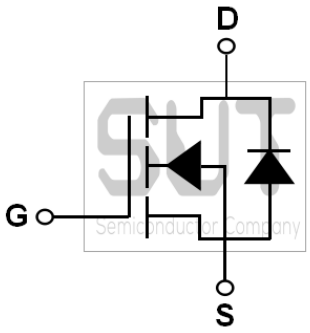
Version 1.0 Date 2019.03.27 Datasheet

N-Channel 80-$V_{(D-S)}$ MOSFET

PRODUCT SUMMARY		
B_{VDSS}(V)	$R_{DS(on)}$ (mΩ)(MAX)	I_D(A)
80	6.0@V_{GS}=10V	120

TO263 Pin Configuration





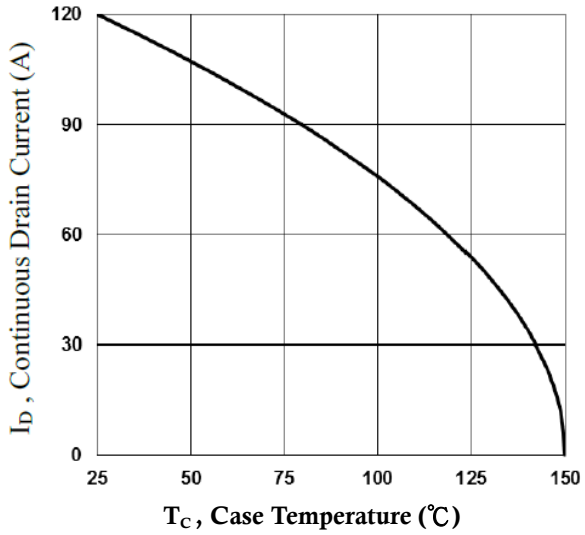
ABSOLUTE MAXIMUM RATINGS(T_C=25℃ UNLESS OTHERWISE NOTED)			
Parameter	**Symbol**	**Rating**	**Units**
Drain-Source Voltage	V_{DS}	80	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous (T_C=25℃)	I_D	120	A
Drain Current-Continuous (T_C=100℃)		75	A
Drain Current-Pulsed[1]	I_{DM}	480	A
Single Pulse Avalanche Energy[2]	EAS	230	mJ
Single Pulse Avalanche Current[2]	IAS	68	A
Power Dissipation (T_C=25℃)	P_D	183	W
Power Dissipation-Derate above 25℃		1.47	W/℃
Storage Temperature Range	T_{STG}	-50 to 150	℃
Operating Junction Temperature Range	T_J	-50 to 150	℃

THERMAL CHARACTERISTICS				
Parameter	**Symbol**	**Typ.**	**Max.**	**Unit**
Thermal Resistance Junction to ambient	$R_{\theta JA}$	---	62	℃/W
Thermal Resistance Junction to Case	$R_{\theta JC}$	---	0.68	℃/W

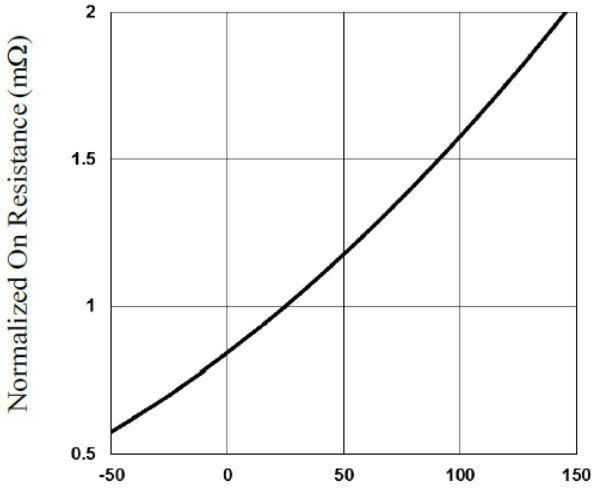
ELECTRICAL CHARACTERISTICS (T_J=25℃ UNLESS OTHERWISE NOTED)						
Parameter	**Symbol**	**Test Condition**	**Min.**	**Typ.**	**Max.**	**Unit**
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V , I_D=250uA	80	---	---	V
Drain-Source Leakage Current	I_{DSS}	V_{GS}=0V,V_{DS}=80V,T_J=25℃	---	---	1	uA
		V_{GS}=0V,V_{DS}=64V,T_J=125℃	---	---	10	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±25V , V_{DS}=0V	---	---	±100	nA
On Characteristics						
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V , I_D=15A	---	5.0	6.0	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS} , I_D=250uA	2.0	3.0	4.0	V
Forward Transconductance	gfs	V_{DS}=10V , I_D=3A	---	18	---	S
Dynamic and Switching Characteristics						
Total Gate Charge[3 , 4]	Q_g	V_{GS}=10V , V_{DS}=64V , I_D=10A	---	88	---	nC
Gate-Source Charge[3 , 4]	Q_{gs}		---	10	---	
Gate-Drain Charge[3 , 4]	Q_{gd}		---	24	---	
Turn-On Delay Time[3 , 4]	$T_{d(on)}$	V_{GS}=10V , V_{DD}=40V , R_G=6Ω , I_D=10A	---	20	---	ns
Rise Time[3 , 4]	T_r		---	13	---	
Turn-Off Delay Time[3 , 4]	$T_{d(off)}$		---	36	---	
Fall Time[3 , 4]	T_f		---	18	---	
Input Capacitance	C_{iss}	V_{GS}=0V , V_{DS}=25V , F=1MHz	---	5160	---	pF
Output Capacitance	C_{oss}		---	646	---	
Reverse Transfer Capacitance	C_{rss}		---	110	---	
Gate resistance	R_g	V_{GS}=0V,V_{DS}=0V,F=1MHz	---	1.6	3.2	Ω
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current	I_S	V_G=V_D=0V,Force Current	---	---	120	A
Pulsed Source Current	I_{SM}		---	---	240	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V , I_S=1A , T_J=25℃	---	---	1.0	V
Reverse Recovery Time	t_{rr}	V_{GS}=0V , I_S=20A , dI/dt=100A/μs , T_J=25℃	---	28	---	ns
Reverse Recovery Charge	Q_{rr}		---	20	---	nC

Note :

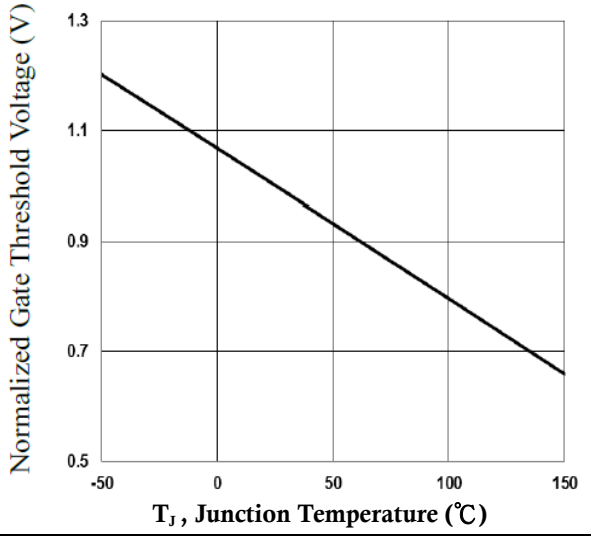
1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. V_{GS}=10V , V_{DD}=50V , L=0.1mH , I_{AS}=68A , R_G=25Ω , Starting T_J=25℃.
3. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%.
4. Essentially independent of operating temperature.



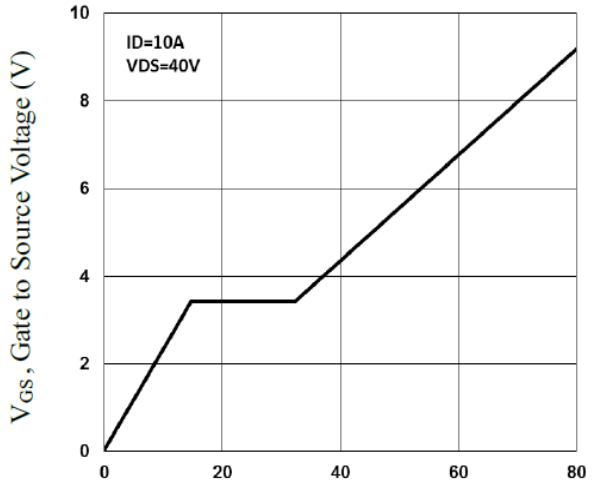
Continuous Drain Current vs. T_C



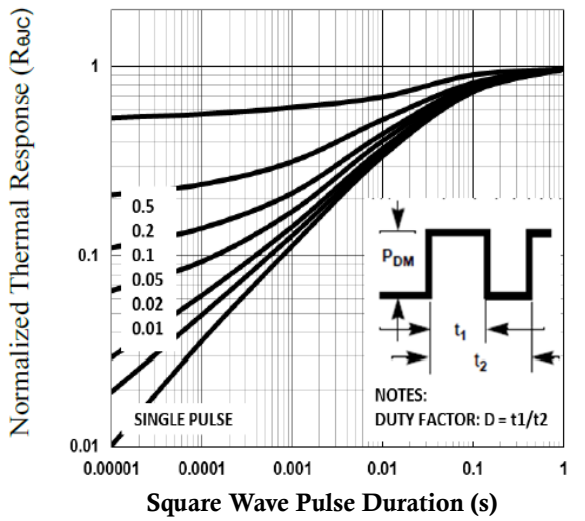
Normalized $R_{DS(ON)}$ vs. T_J



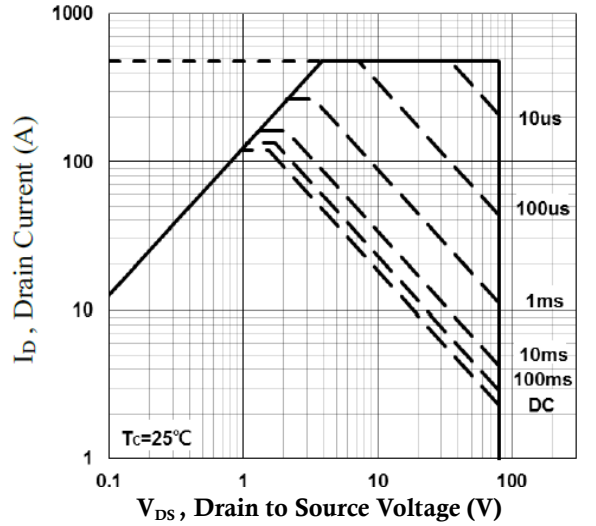
Normalized V_{th} vs. T_J



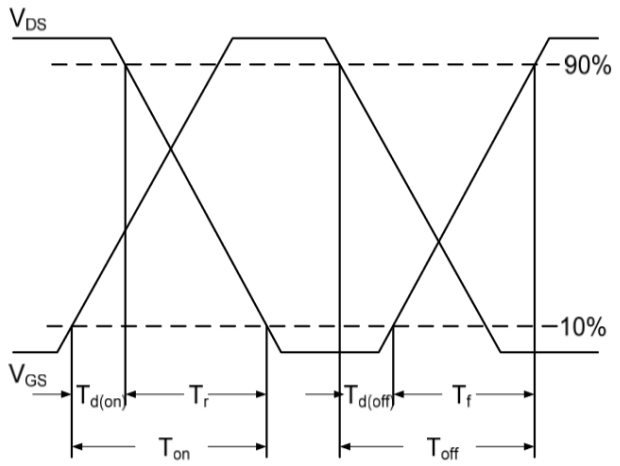
Gate Charge Characteristics



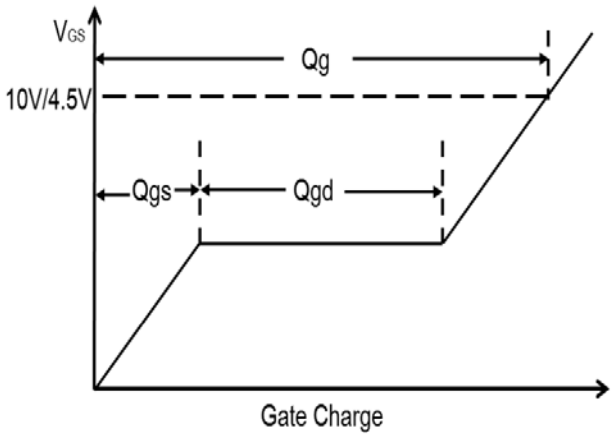
Normalized Transient Impedance



Maximum Safe Operation Area



Switching Time Waveform



Gate Charge Waveform

TO263 PACKAGE INFORMATION