

Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	100	---	---	V
ΔBV _{DSS} /ΔT _J	BVDSS Temperature Coefficient	Reference to 25°C, I _D =1mA	---	0.098	---	V/°C
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V, I _D =5A	---	90	110	mΩ
		V _{GS} =4.5V, I _D =2A	---	110	150	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	1.0	1.5	2.5	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =80V, V _{GS} =0V, T _J =25°C	---	---	1	nA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±100	uA
gfs	Forward Transconductance	V _{DS} =5V, I _D =5A	3.5	---	---	S
Q _g	Total Gate Charge (10V)	V _{DS} =50V, V _{GS} =10V, I _D =5A	---	21.5	---	nC
Q _{gs}	Gate-Source Charge		---	3.2	---	
Q _{gd}	Gate-Drain Charge		---	6.0	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =30V, V _{GS} =10V, R _G =6Ω I _D =1A, R _L =30Ω	---	11	24	ns
T _r	Rise Time		---	7.4	15	
T _{d(off)}	Turn-Off Delay Time		---	35	45	
T _f	Fall Time		---	9.1	12	
C _{iss}	Input Capacitance	V _{DS} =30V, V _{GS} =0V, f=1MHz	---	730	980	pF
C _{oss}	Output Capacitance		---	37	55	
C _{rss}	Reverse Transfer Capacitance		---	27	35	

Guaranteed Avalanche Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
EAS	Single Pulse Avalanche Energy ⁵	V _{DD} =25V, L=0.5mH, I _{AS} =6A	25	---	---	mJ

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current ^{1,6}	V _G =V _D =0V, Force Current	---	---	5	A
I _{SM}	Pulsed Source Current ^{2,6}		---	---	64	A
V _{SD}	Diode Forward Voltage ²	V _{GS} =0V, I _S =5A, T _J =25°C	---	---	1.1	V
t _{rr}	Reverse Recovery Time	I _F =5A, di/dt=100A/μs, T _J =25°C	33	47	61	nS
Q _{rr}	Reverse Recovery Charge		61	87	113	nC

Note :

- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper, t_l≤10sec.
- 2.The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%
- 3.The EAS data shows Max. rating. The test condition is V_{DD}=25V, V_{GS}=10V, L=0.5mH, I_{AS}=6A
- 4.The power dissipation is limited by 150°C junction temperature
- 5.The Min. value is 100% EAS tested guarantee.
- 6.The data is theoretically the same as I_D and I_{DM}, in real applications, should be limited by total power dissipation.

Typical Characteristics

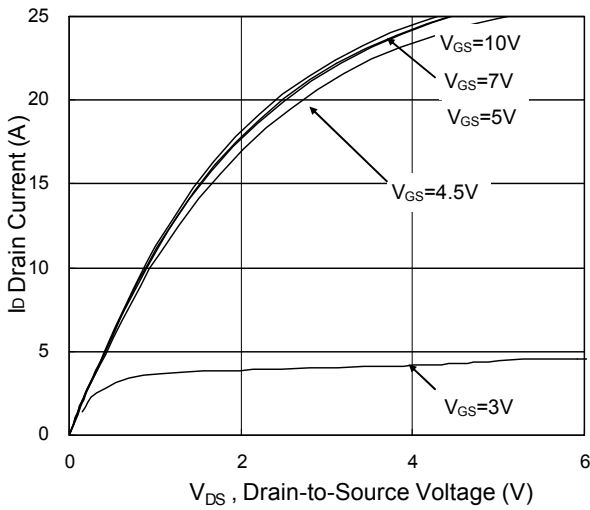


Fig.1 Typical Output Characteristics

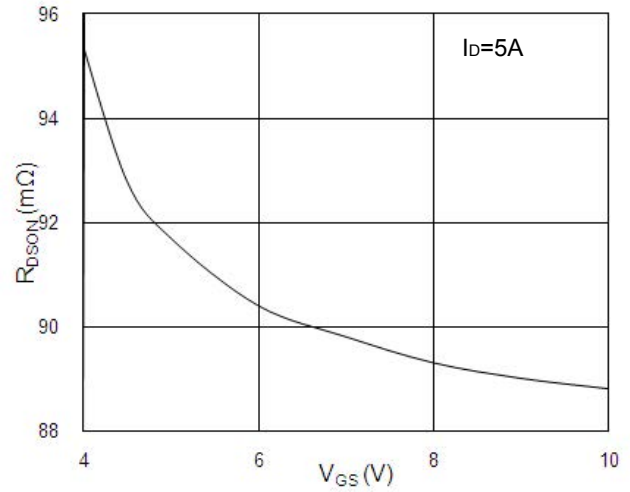


Fig.2 On-Resistance vs. Gate-Source

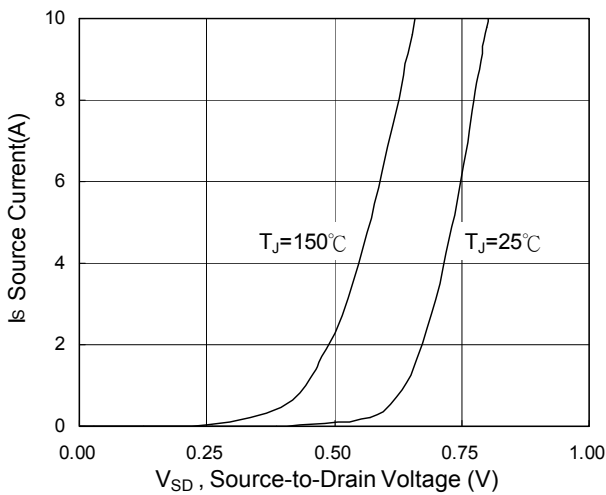


Fig.3 Forward Characteristics Of Reverse

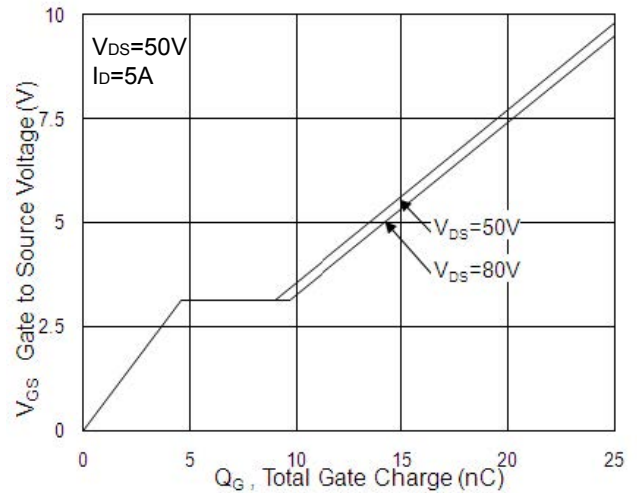


Fig.4 Gate-Charge Characteristics

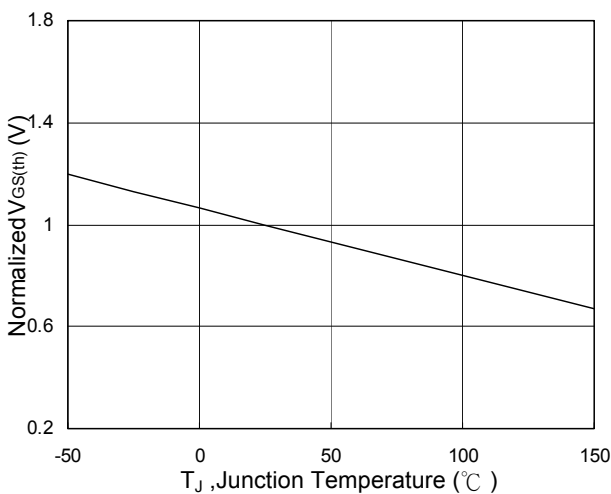


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

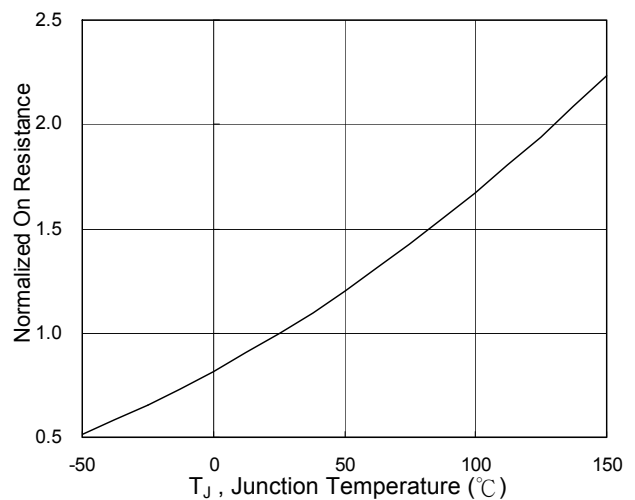


Fig.6 Normalized $R_{DS(on)}$ vs. T_J

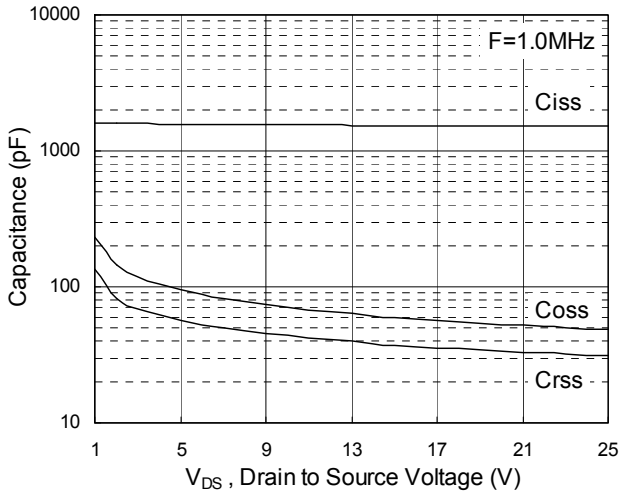


Fig.7 Capacitance

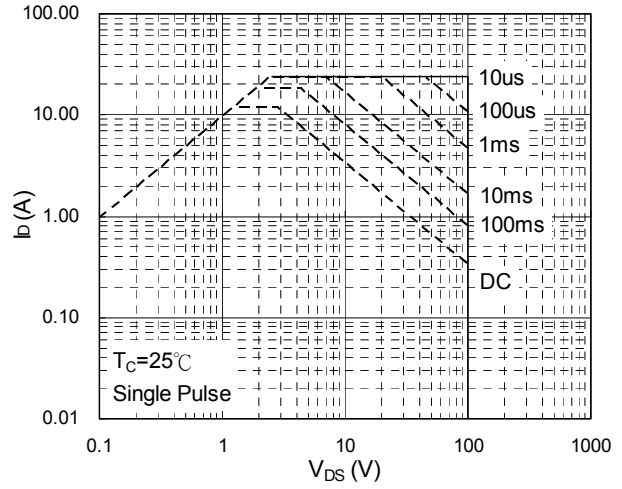


Fig.8 Safe Operating Area

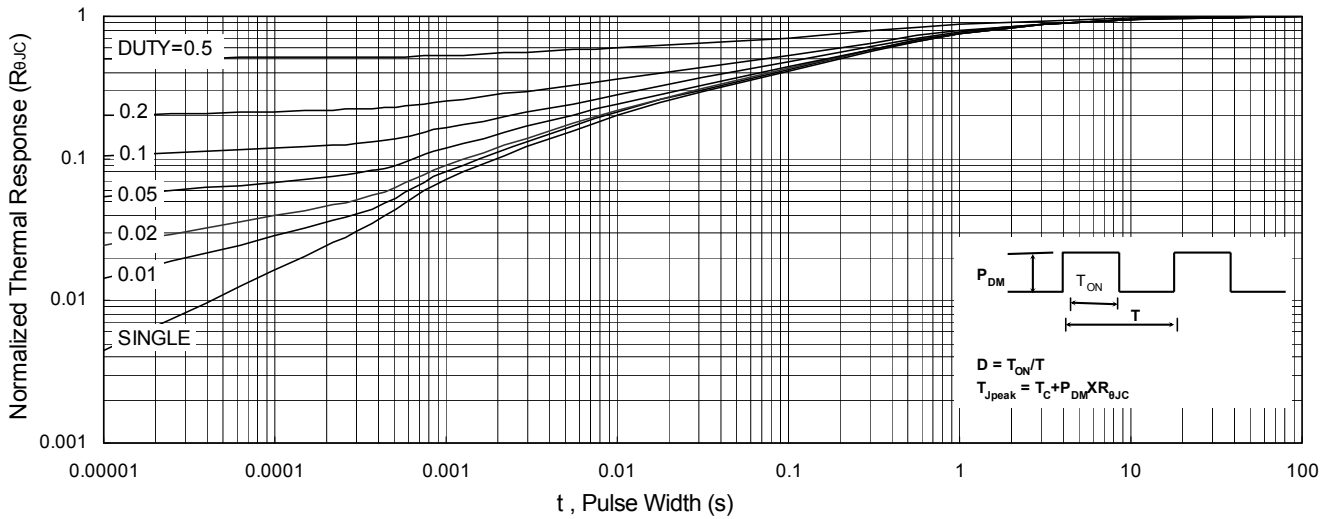


Fig.9 Normalized Maximum Transient Thermal Impedance

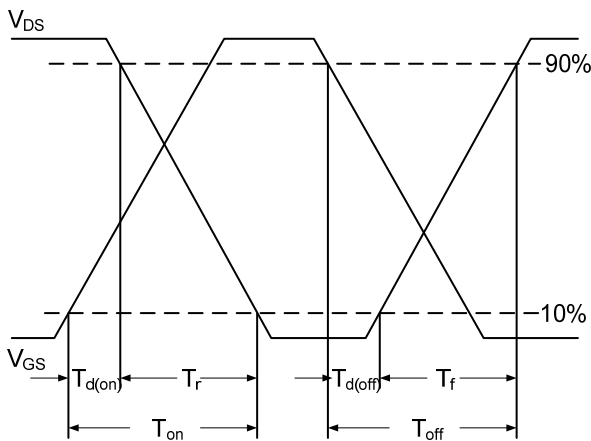


Fig.10 Switching Time Waveform

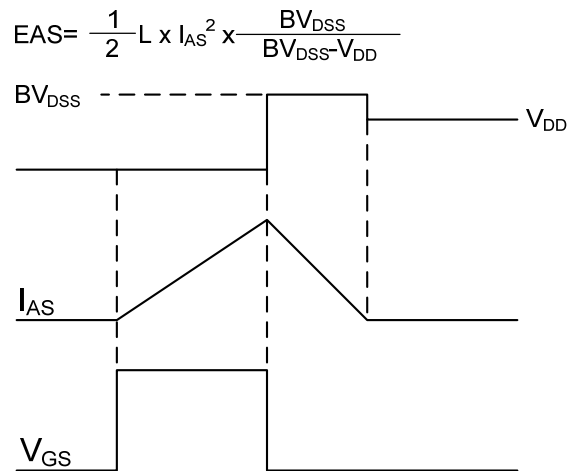


Fig.11 Unclamped Inductive Switching Waveform



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