

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	-30	---	---	V
ΔBV _{DSS} /ΔT _J	BV _{DSS} Temperature Coefficient	Reference to 25°C, I _D =-1mA	---	-0.022	---	V/°C
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =-10V, I _D =-8.0A	---	16	19	mΩ
		V _{GS} =-4.5V, I _D =-5.6A	---	18.5	25	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =-250uA	-1.2	-1.4	-2.0	V
ΔV _{GS(th)}	V _{GS(th)} Temperature Coefficient		---	4.6	---	mV/°C
I _{DSS}	Drain-Source Leakage Current	V _{DS} =-24V, V _{GS} =0V, T _J =25°C	---	---	-1	uA
		V _{DS} =-24V, V _{GS} =0V, T _J =55°C	---	---	-5	
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =-5V, I _D =-3A	---	21.7	---	S
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz	---	3.6	5.0	Ω
Q _g	Total Gate Charge (-4.5V)	V _{DS} =-15V, V _{GS} =-4.5V, I _D =-8.9A	---	12	---	nC
Q _{gs}	Gate-Source Charge		---	5.9	---	
Q _{gd}	Gate-Drain Charge		---	4.7	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =-15V, V _{GS} =-10V, R _G =6Ω, I _D =-1A, R _L =15Ω,	---	8.9	---	ns
T _r	Rise Time		---	10.8	---	
T _{d(off)}	Turn-Off Delay Time		---	35.5	---	
T _f	Fall Time		---	46.9	---	
C _{iss}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1MHz	---	1025	---	pF
C _{oss}	Output Capacitance		---	209	---	
C _{rss}	Reverse Transfer Capacitance		---	158	---	

Guaranteed Avalanche Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
EAS	Single Pulse Avalanche Energy ⁵	V _{DD} =-25V, L=0.5mH, I _{AS} =-24A	42	---	---	mJ

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current ^{1,6}	V _G =V _D =0V, Force Current	---	---	-8	A
I _{SM}	Pulsed Source Current ^{2,6}		---	---	-40	A
V _{SD}	Diode Forward Voltage ²	V _{GS} =0V, I _S =-1A, T _J =25°C	---	---	-1.2	V
t _{rr}	Reverse Recovery Time	I _F =-8.9A, dI/dt=100A/μs, T _J =25°C	---	16.5	---	nS
Q _{rr}	Reverse Recovery Charge		---	6.2	---	nC

Note :

- The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper, t<10sec.
- The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%
- The EAS data shows Max. rating. The test condition is V_{DD}=-25V, V_{GS}=-10V, L=0.5mH, I_{AS}=-24A
- The power dissipation is limited by 150°C junction temperature
- The Min. value is 100% EAS tested guarantee.
- The data is theoretically the same as I_D and I_{DM}, in real applications, should be limited by total power dissipation.

Typical Characteristics

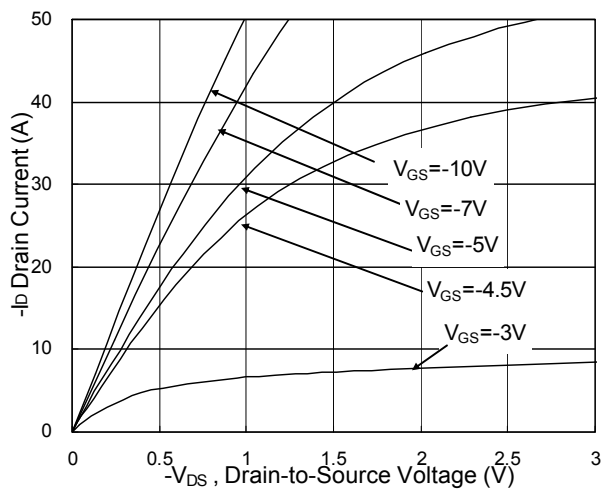


Fig.1 Typical Output Characteristics

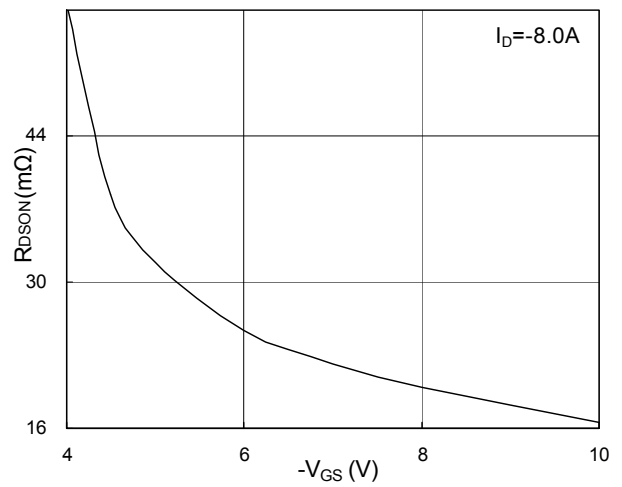


Fig.2 On-Resistance v.s Gate-Source

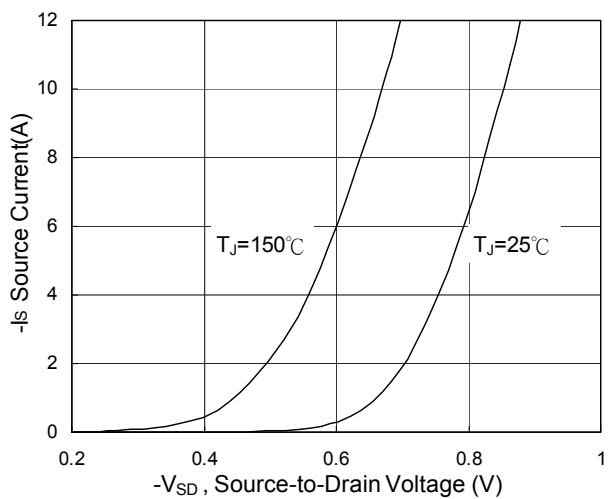


Fig.3 Forward Characteristics of Reverse

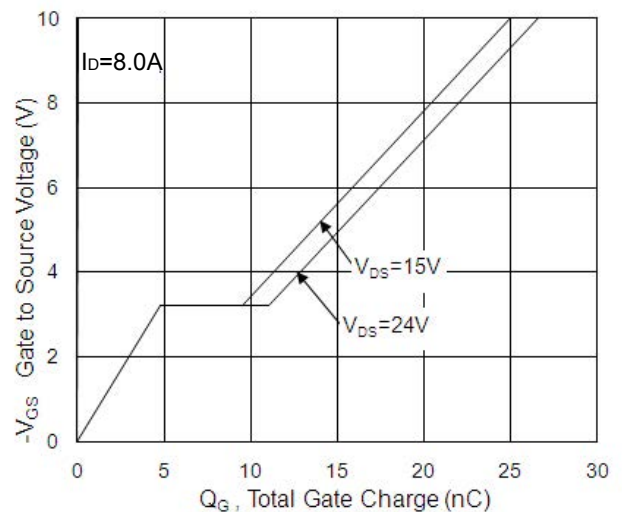


Fig.4 Gate-Charge Characteristics

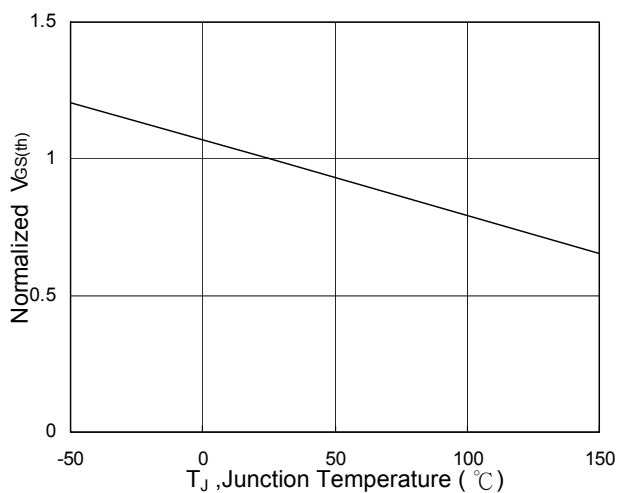


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

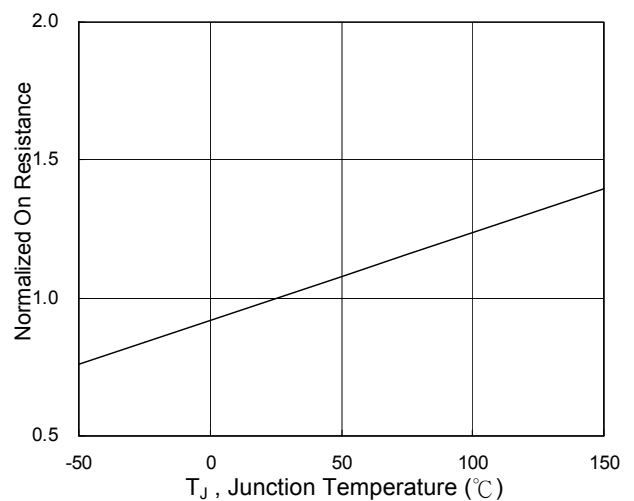


Fig.6 Normalized $R_{DS(on)}$ vs. T_J

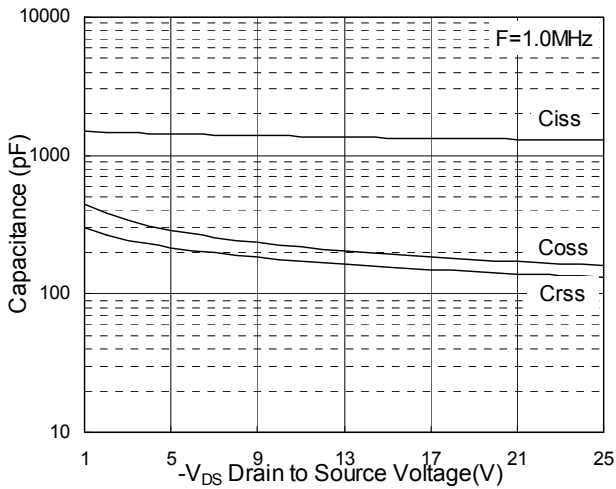


Fig.7 Capacitance

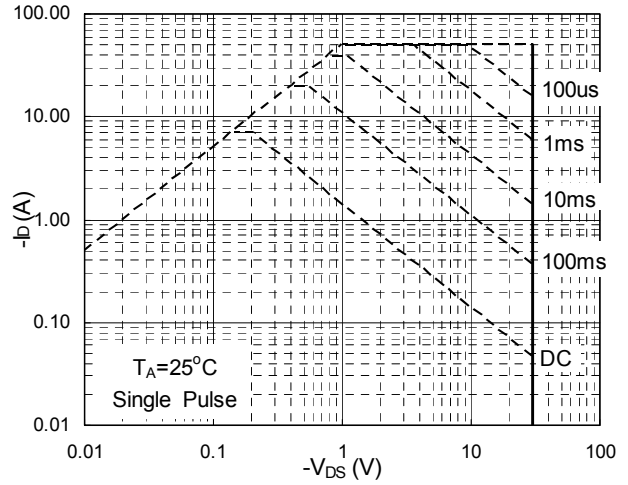


Fig.8 Safe Operating Area

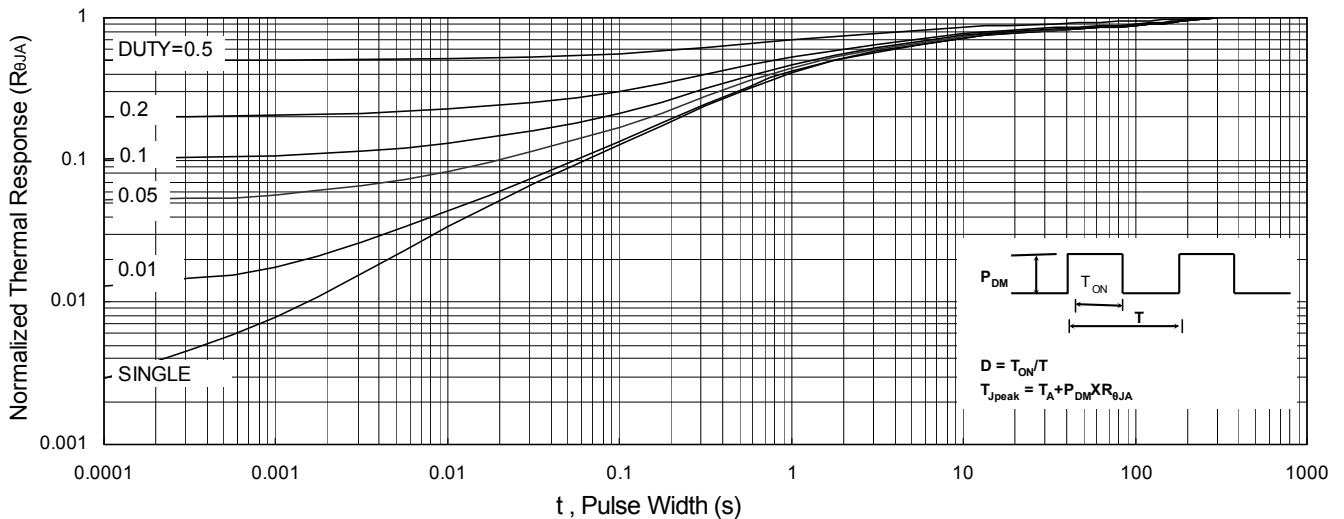


Fig.9 Normalized Maximum Transient Thermal Impedance

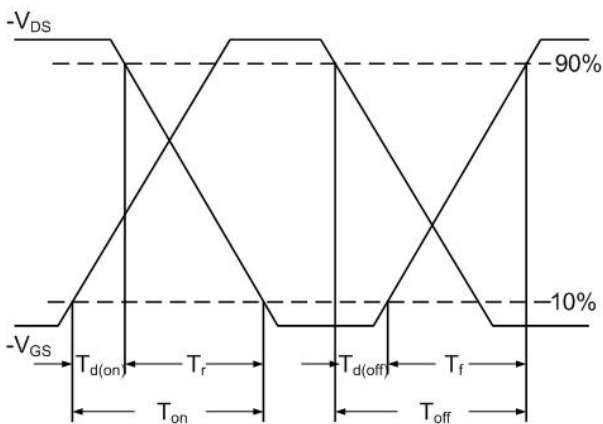


Fig.10 Switching Time Waveform

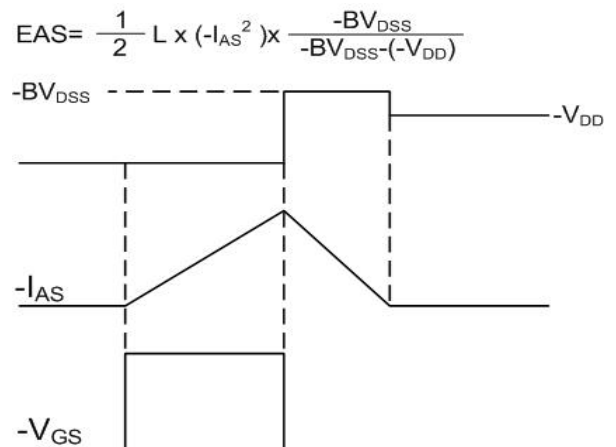


Fig.11 Unclamped Inductive Switching Waveform



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