



**Electrical Characteristics (T<sub>J</sub>=25 °C, unless otherwise noted)**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	30	---	---	V
R <sub>DS(on)</sub>	Static Drain-Source On-Resistance <sup>2</sup>	V <sub>GS</sub> =10V, I <sub>D</sub> =30A	---	4.1	6.5	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =24A	---	6.5	8.0	
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250uA	1.0	1.1	1.4	V
I <sub>DSS</sub>	Drain-Source Leakage Current	V <sub>DS</sub> =24V, V <sub>GS</sub> =0V, T <sub>J</sub> =25°C	---	---	1	uA
		V <sub>DS</sub> =24V, V <sub>GS</sub> =0V, T <sub>J</sub> =55°C	---	---	5	
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	---	---	±100	nA
g <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> =5V, I <sub>D</sub> =30A	20	---	---	S
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =10V, I <sub>D</sub> =30A, V <sub>GS</sub> =10V	---	51	---	nC
Q <sub>gs</sub>	Gate-Source Charge		---	14	---	
Q <sub>gd</sub>	Gate-Drain Charge		---	11	---	
T <sub>d(on)</sub>	Turn-On Delay Time	V <sub>DD</sub> =10V, I <sub>D</sub> =30A V <sub>GS</sub> =10V, R <sub>GEN</sub> =2.7Ω	---	20	---	ns
T <sub>r</sub>	Rise Time		---	15	---	
T <sub>d(off)</sub>	Turn-Off Delay Time		---	60	---	
T <sub>f</sub>	Fall Time		---	10	---	
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, F=1.0MHz	---	2330	---	pF
C <sub>oss</sub>	Output Capacitance		---	460	---	
C <sub>rss</sub>	Reverse Transfer Capacitance		---	230	---	

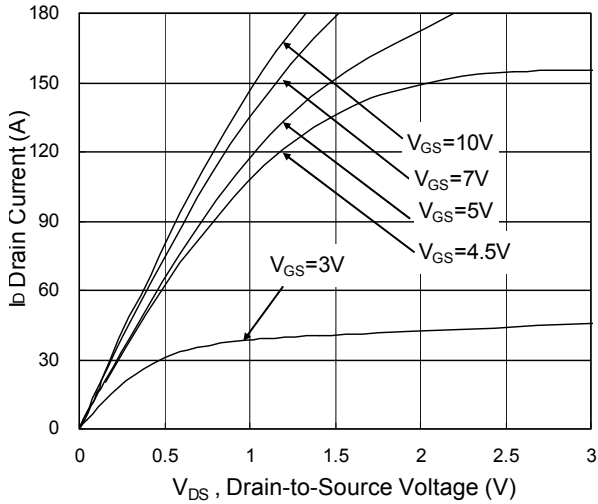
**Drain-Source Diode Characteristics**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I <sub>S</sub>	Continuous Source Current <sup>1,6</sup>	V <sub>G</sub> =V <sub>D</sub> =0V, Force Current	---	---	60	A
V <sub>SD</sub>	Diode Forward Voltage <sup>2</sup>	V <sub>GS</sub> =0V, I <sub>S</sub> =24A	---	---	1.2	V
t <sub>rr</sub>	Reverse Recovery Time	I <sub>F</sub> =30A, di/dt=100A/μs, T <sub>J</sub> =25°C	---	32	50	nS
Q <sub>rr</sub>	Reverse Recovery Charge		---	12	20	nC

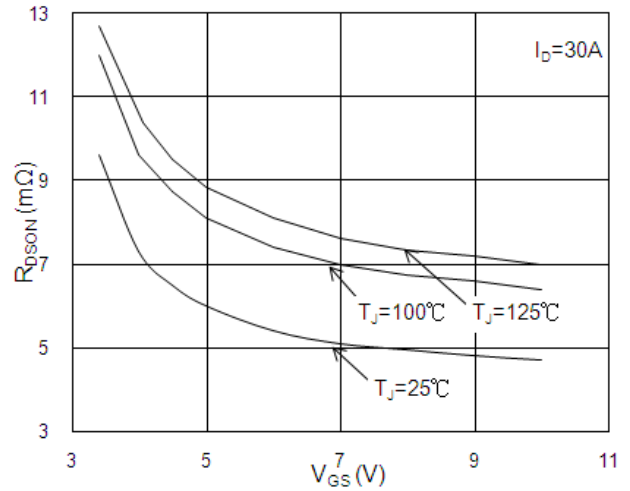
**Notes:**

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production
5. EAS condition T<sub>J</sub>=25 °C, V<sub>DD</sub>=15V, V<sub>G</sub>=10V, L=0.5mH, R<sub>g</sub>=25 Ω, I<sub>AS</sub>=35A

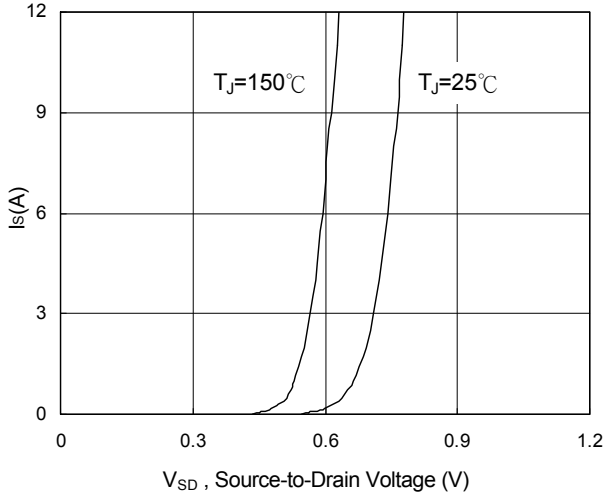
**Typical Characteristics**



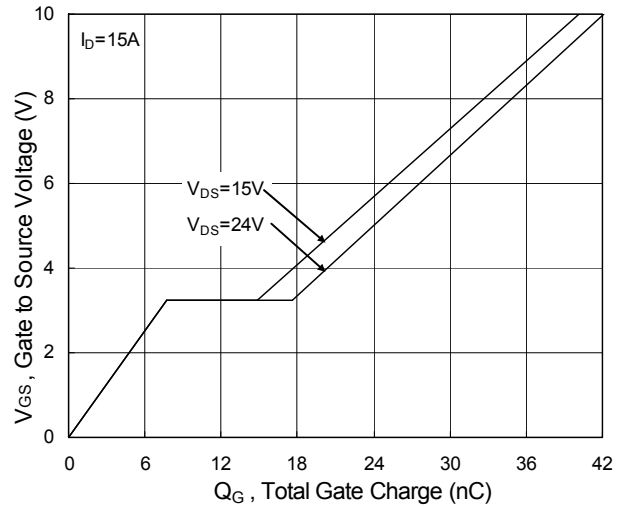
**Fig.1 Typical Output Characteristics**



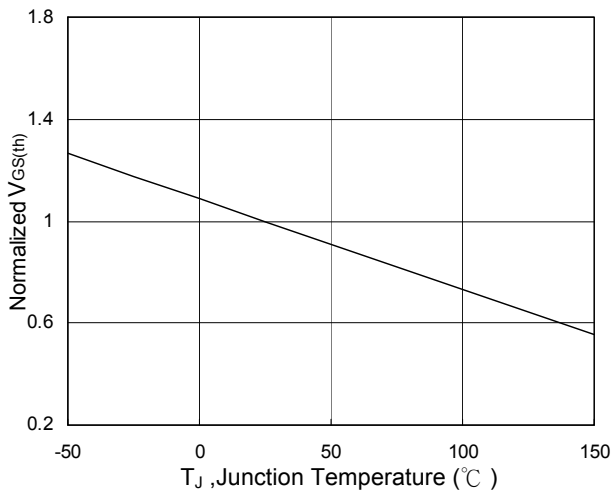
**Fig.2 On-Resistance vs. G-S Voltage**



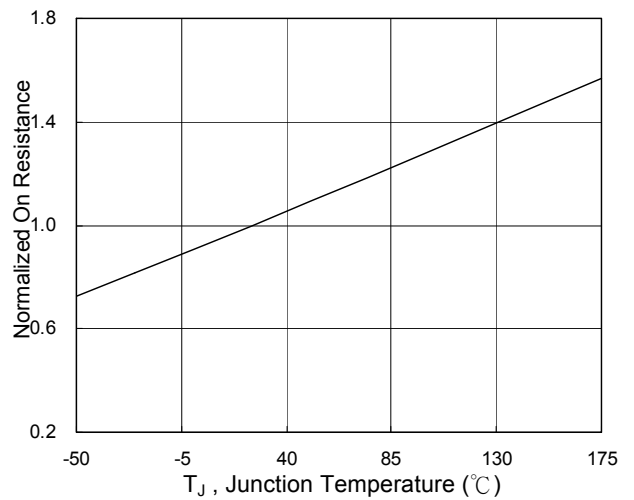
**Fig.3 Forward Characteristics of Reverse**



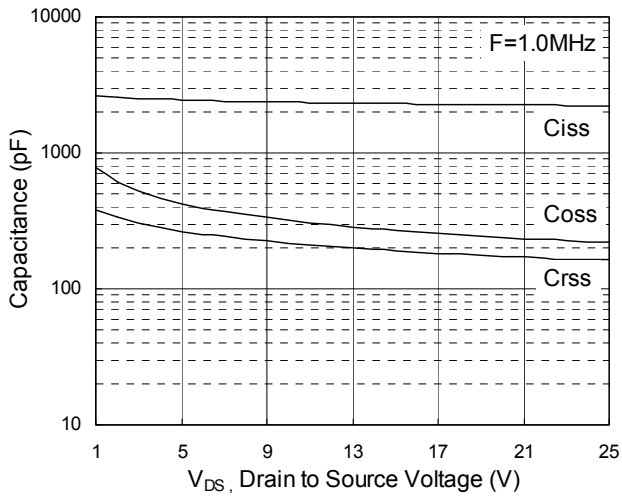
**Fig.4 Gate-Charge Characteristics**



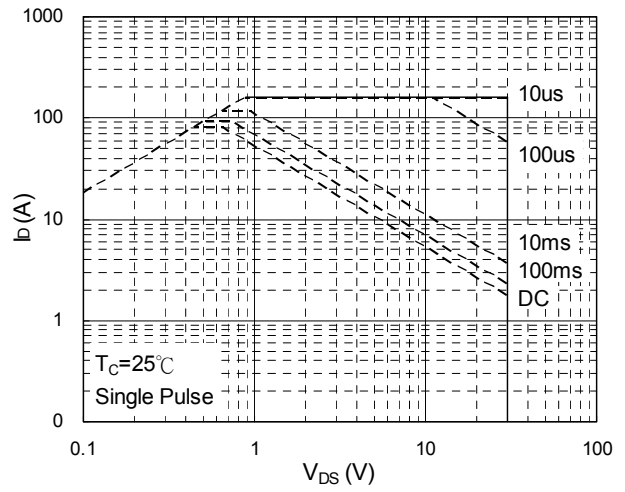
**Fig.5 Normalized  $V_{GS(th)}$  vs.  $T_J$**



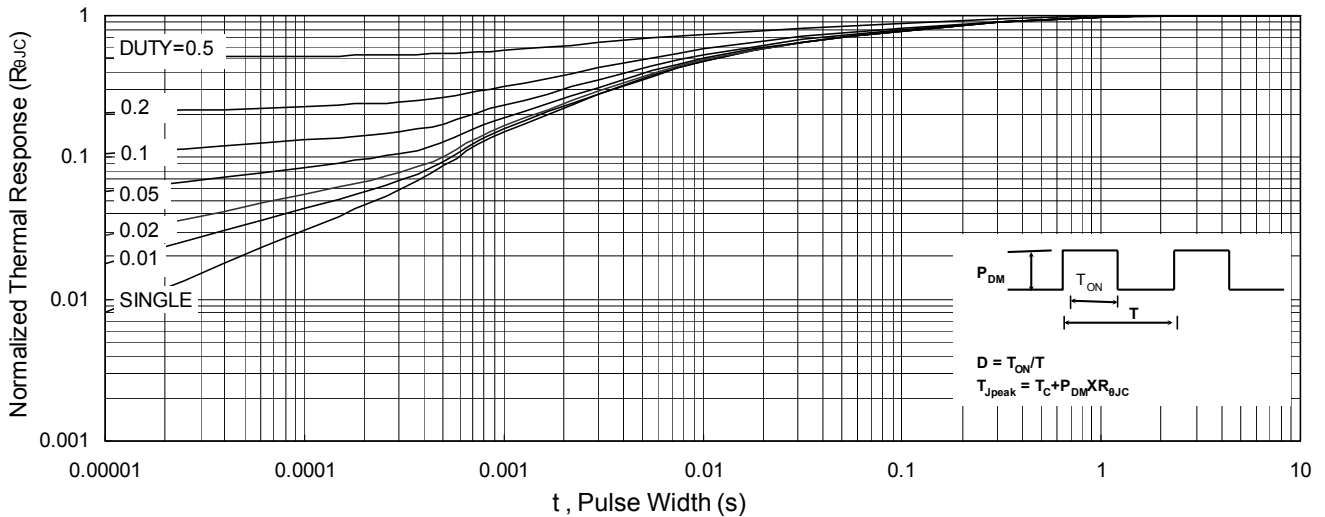
**Fig.6 Normalized  $R_{DS(on)}$  vs.  $T_J$**



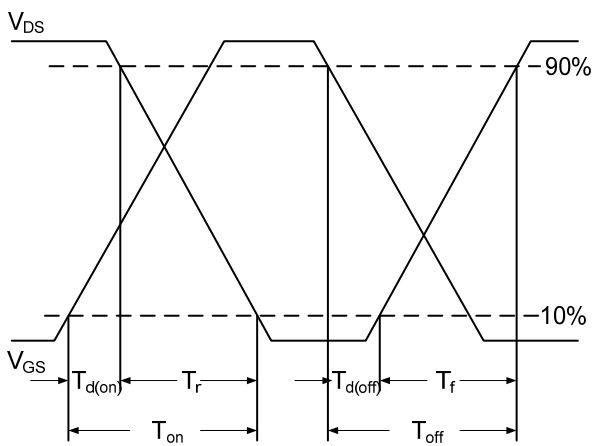
**Fig.7 Capacitance**



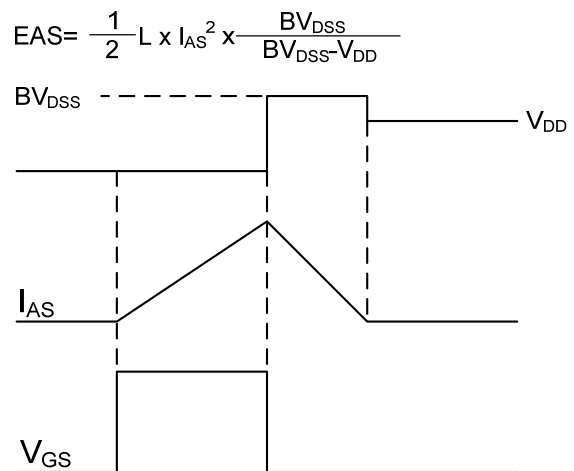
**Fig.8 Safe Operating Area**



**Fig.9 Normalized Maximum Transient Thermal Impedance**



**Fig.10 Switching Time Waveform**



**Fig.11 Unclamped Inductive Switching Waveform**





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