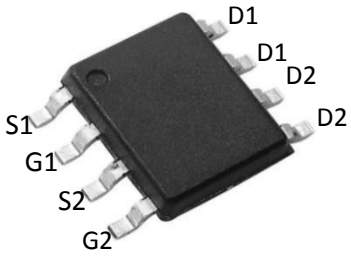
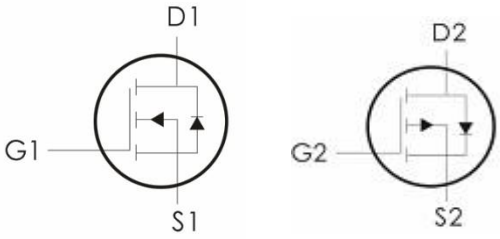
Description：

This N-Channel and P-Channel MOSFET use advanced trench Technology To provide excellent RDS(ON)，low gate charge. This device may be usedto form a level shifted high side switch, and for a host of other application.





Features：

1) N-Channel:V_{DS}=30V,I_D= 6A,$R_{DS(ON)}$<32m Ω @V_{GS}=10V
   P-Channel: V_{DS}=-30V,I_D=-6A,$R_{DS(ON)}$<65m Ω @V_{GS}=-10V
2) Low gate charge.
3) Green device available.
4) Advanced high cell denity trench technology for ultra $R_{DS(ON)}$.
5) Excellent package for good heat dissipation.

Absolute Maximum Ratings： (T_C=25℃ unless otherwise noted)

Symbol	Parameter	N-Channel	P-Channel	Units
V_{DS}	Drain-Source Voltage	30	-30	V
V_{GS}	Gate-Source Voltage	±12	±12	V
I_D	Continuous Drain Current- Tj=150℃[A]	6	-6	A
	Continuous Drain Current-TC=70℃[A]	5.8	-5	
I_{DM}	Pulsed Drain Current[B]	±30		A
P_D	Power Dissipation Ta=25℃	2		W
	Pulsed Drain Current Ta=25℃	1.44		℃/ W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150		℃

Thermal Characteristics：

Symbol	Parameter	N-Channel	P-Channel	Units
$R_{\Theta JA}$	Thermal Resistance,Junction to Ambient [A]	110		℃/W

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N-Electrical Characteristics: (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=-0V,I_D=250μA	30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=24V	---	---	1	μA
			---	---	5	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0A	---	---	±100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	0.7	---	1.3	V
$R_{DS(ON)}$	Drain-Source On Resistance	V_{GS}=10V,I_D=6A	---	24	32	mΩ
		V_{GS}=10V I_D=6A T_J=125℃	---	32.3	38	
		V_{GS}=4.5V,I_D=5A	---	27	36	mΩ
G_{FS}	Forward Transconductance	V_{DS}=5V, I_D=5A	---	9	---	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=15V, V_{GS}=0V, f=1MHz	---	680	---	pF
C_{oss}	Output Capacitance		---	102	---	
C_{rss}	Reverse Transfer Capacitance		---	77	---	
R_g	Gate resistance	V_{DS}=0V V_{GS}=0V f=1.0MHz	---	3	---	Ω
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=-15V, R_{GEN}=2.1Ω,V_{GS}=10V	---	4.6	---	ns
t_r	Rise Time		---	4.1	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	20.6	---	ns
t_f	Fall Time		---	5.2	---	ns

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Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=15V, I_D=6A	---	13.84	---	nC
			---	6.74	---	nC
Q_{gs}	Gate-Source Charge		---	1.82	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	3.2	---	nC
Drain-Source Diode Characteristics						
Qrr	Reverse Recovery Charge	I_F=6A dI/dt=100A/μs	---	7.8	---	NC

P-Electrical Characteristics: (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=-0V,I_D=250μA	-30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=-24V	---	---	-1	
		V_{GS}=0V, V_{DS}=-24V	---	---	-5	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0A	---	---	±100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=-250μA	-0.5	-0.7	-1.3	V
I_D	On state drain current	V_{GS}=-5V, V_{DS}=-4.5V	6	---	---	A
$R_{DS(ON)}$	Drain-Source On Resistance	V_{GS}=-10V,I_D=-6A	---	52	65	mΩ
		V_{GS}=-4.5V,I_D=-5A	---	59	75	
G_{FS}	Forward Transconductance	V_{DS}=-5V, I_D=-5A	---	12	---	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=-15V, V_{GS}=0V, f=1MHz	---	920	---	pF
C_{oss}	Output Capacitance		---	190	---	
C_{rss}	Reverse Transfer Capacitance		---	122	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=-15V, I_D=-6A, R_{GEN}=3Ω,V_{GS}=-10V	---	7.7	---	ns
t_r	Rise Time		---	5.7	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	20.2	---	ns

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t_f	Fall Time		---	9.5	---	ns
Q_g	Total Gate Charge	V_{GS}=-10V, V_{DS}=-15V, I_D=-6A	---	18.5	---	nC
			---	9.6	---	nC
Q_{gs}	Gate-Source Charge		---	2.7	---	nC
Q_{gd}	Gate-Drain "Miller" Charge		---	4.5	---	nC
Drain-Source Diode Characteristics						
Qrr	Reverse Recovery Charge	I_F=-6A dI/dt=100A/μs	---	8.8	---	NC
Trr	Body Diode Reverse Recovery Time	I_F=-6A dI/dt=100A/μs	---	20	---	

Notes:

A:The value of $R_{\theta JA}$ is measured with the device mounted on 1in ^{2} FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C. The value in any a given application depends on the user's specific board design. The current rating is based on the t ≤ 10s thermal resistance rating.

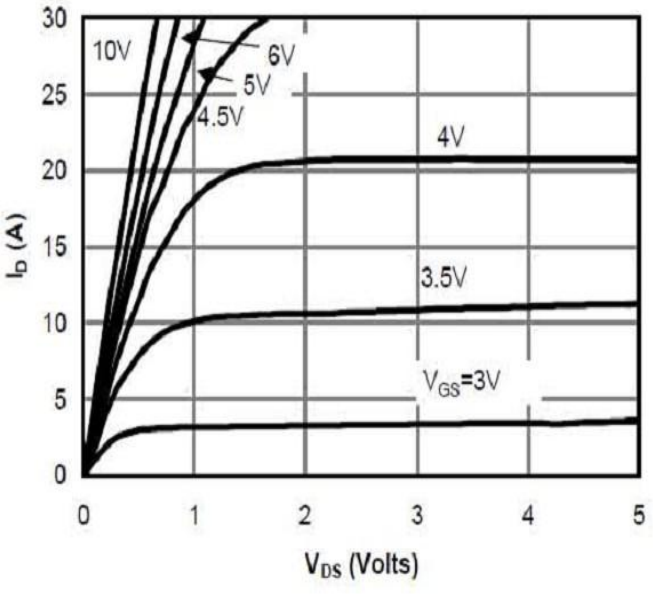
B: Repetitive rating, pulse width limited by junction temperature.

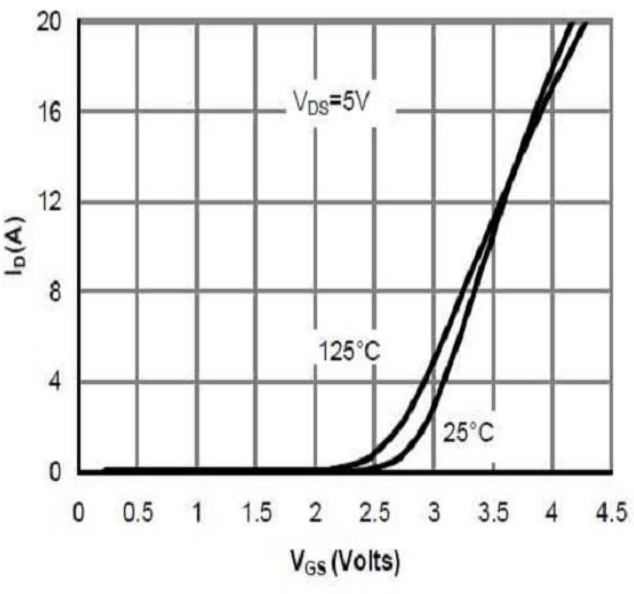
C. The $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JL}$ and lead to ambient.

D. The static characteristics in Figures 1 to 6,12,14 are obtained using 80 μs pulses, duty cycle 0.5% max.

E. These tests are performed with the device mounted on 1 in ^{2} FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The SOA curve provides a single pulse rating.

N-Typical Characteristics: (T_C=25℃ unless otherwise noted)





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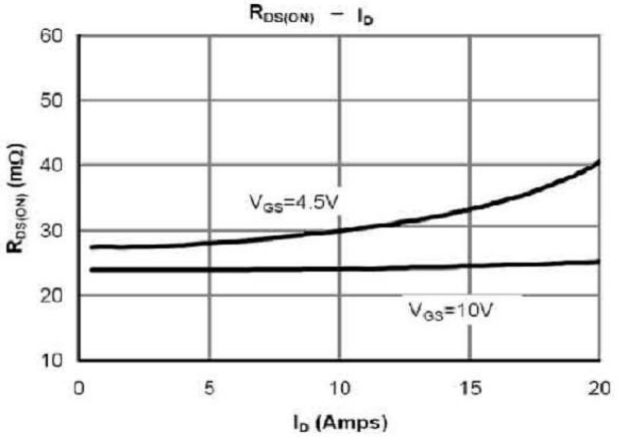
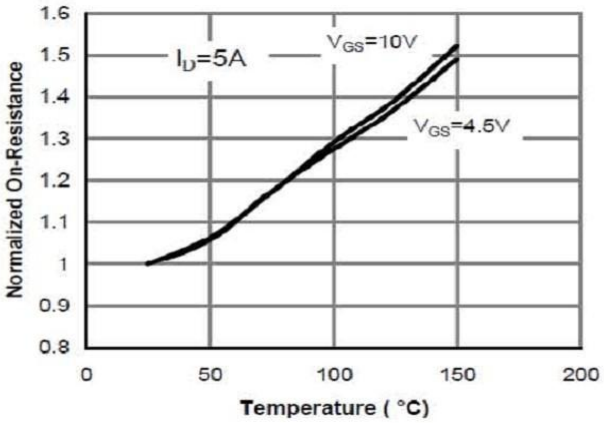
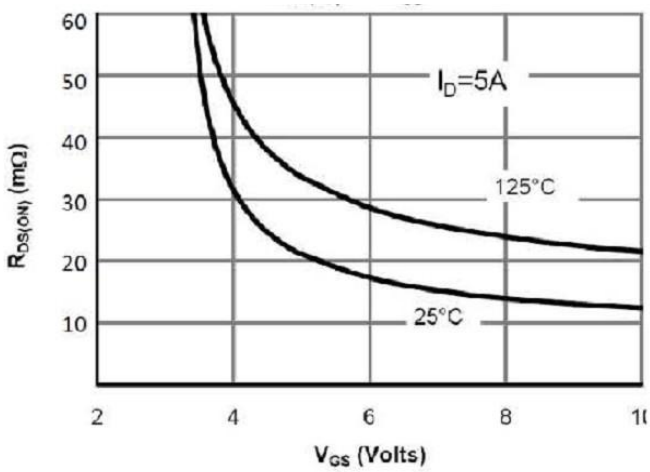
$R_{DS(ON)}$ – I_D



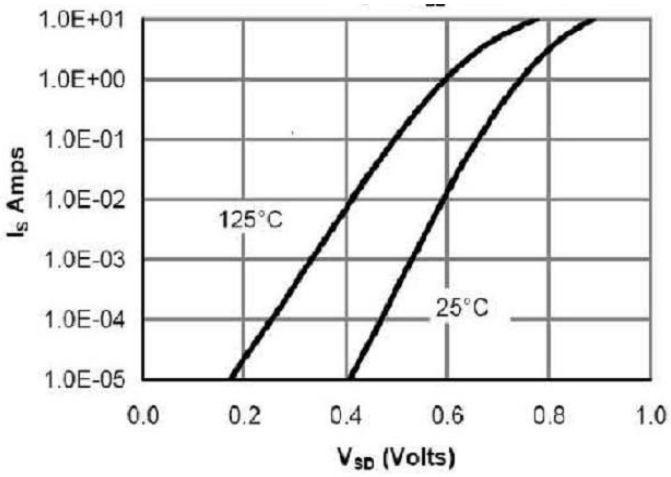
Normalized On-Resistance – Temperature



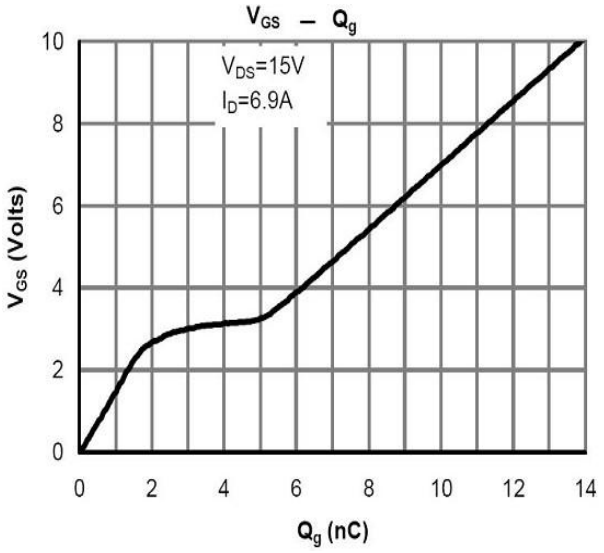
$R_{DS(ON)}$ – V_{GS}



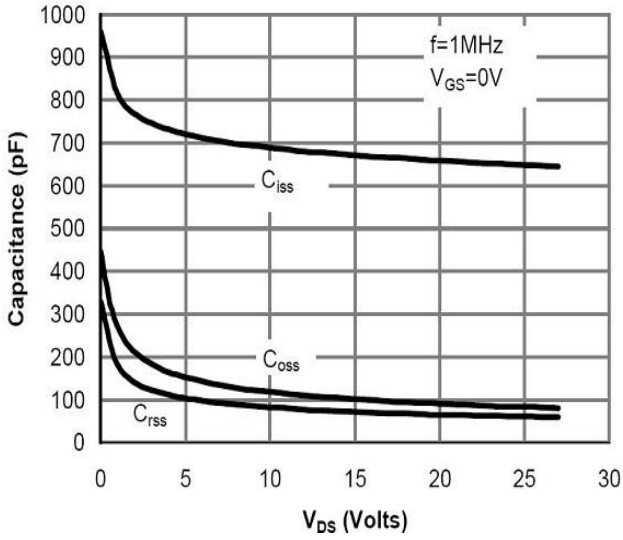
I_S – V_{SD}



V_{GS} – Q_g



Capacitance – V_{DS}



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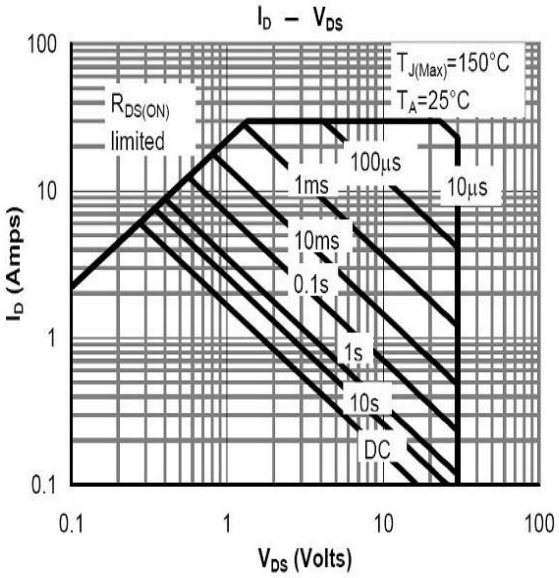

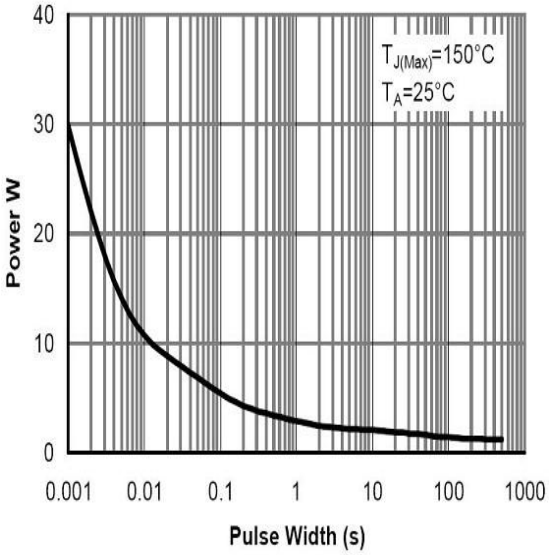

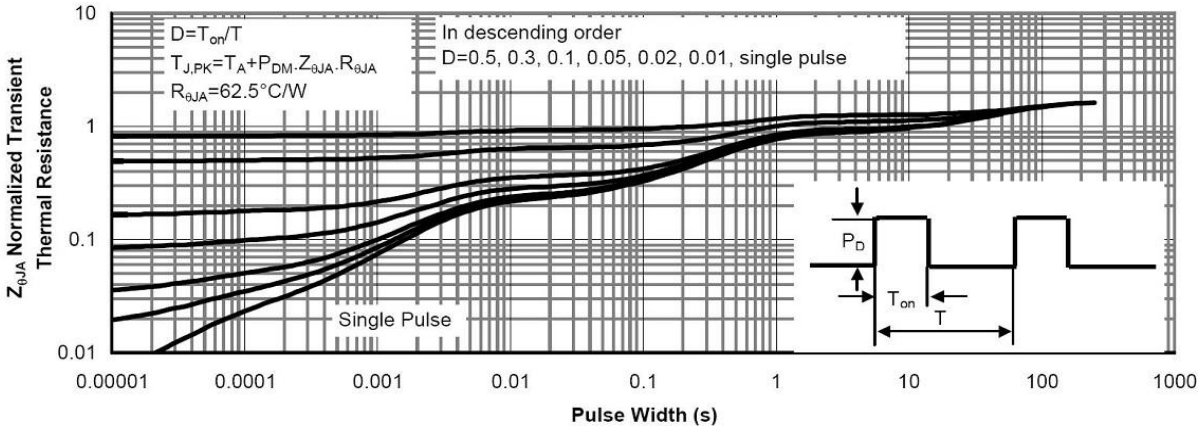

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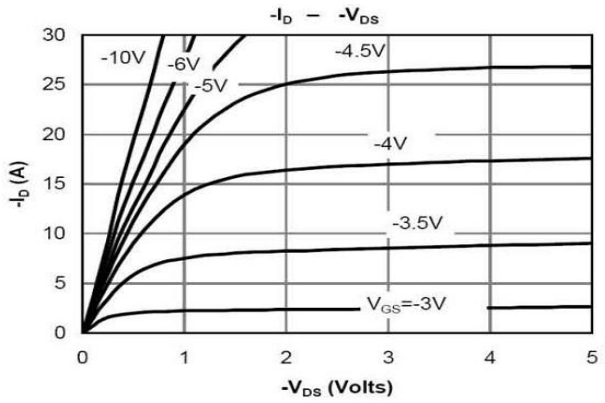
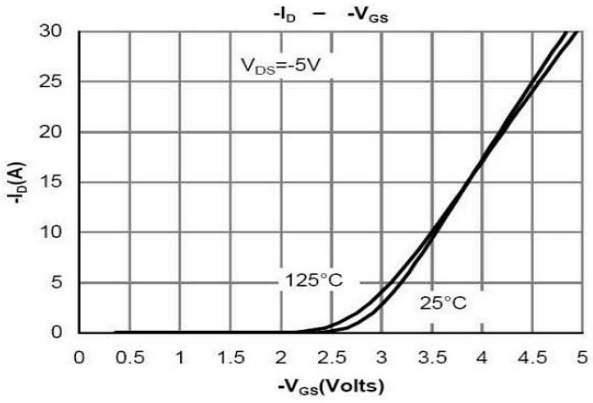
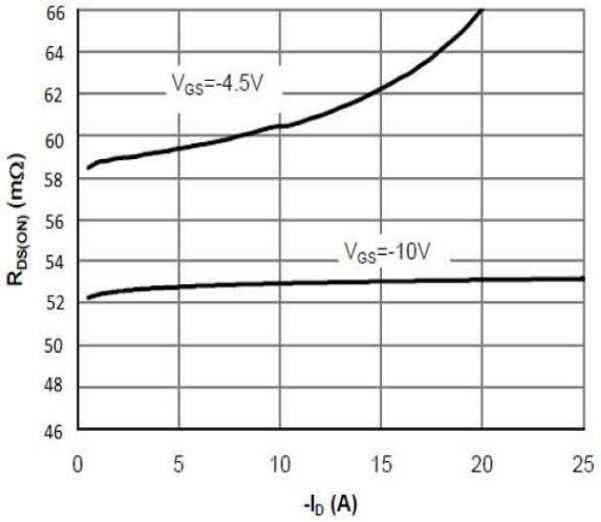
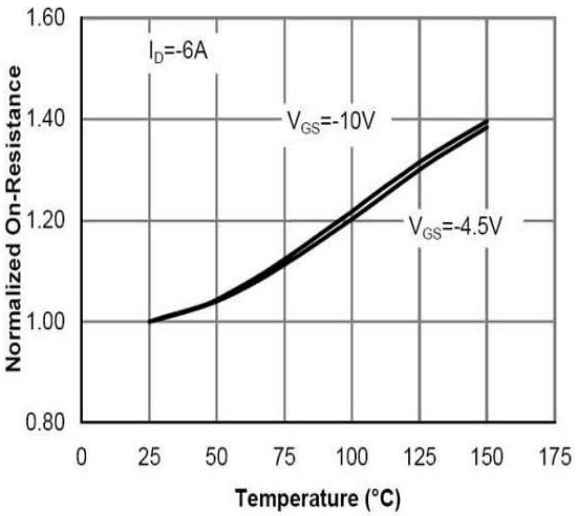
P -Typical Characteristics：

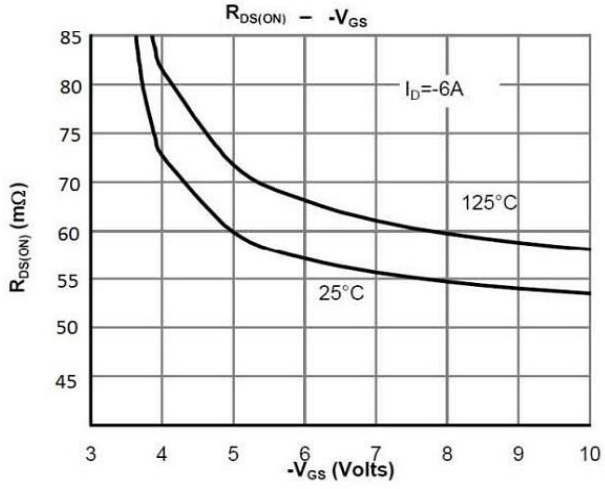
(T_C=25℃ unless otherwise noted)

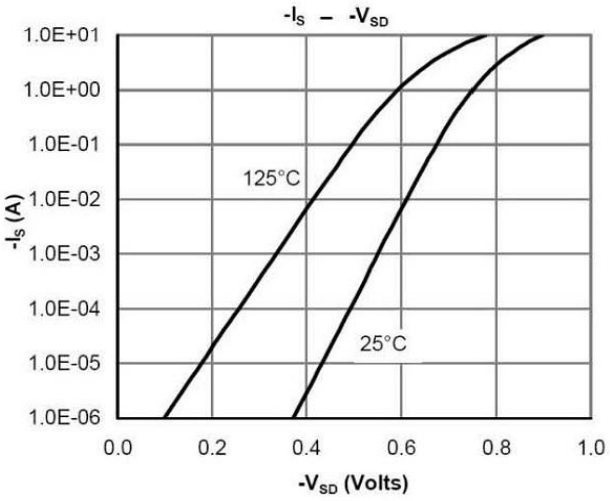












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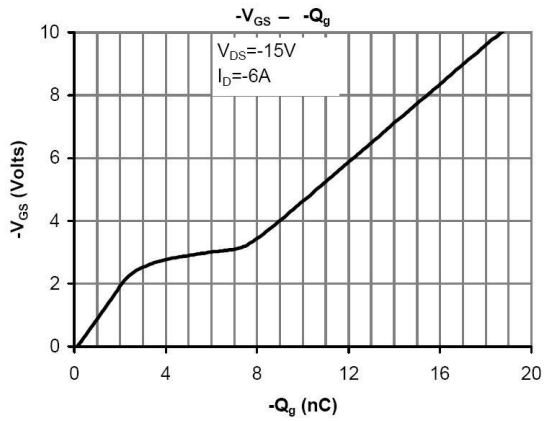

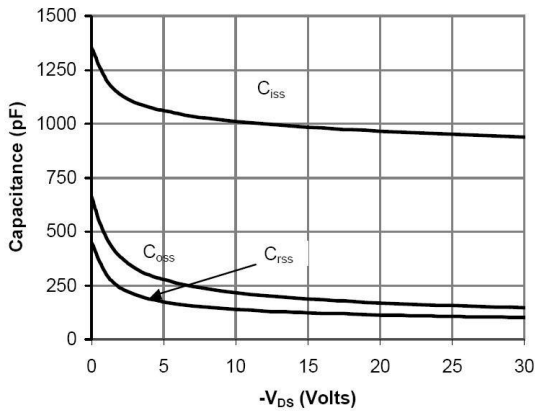

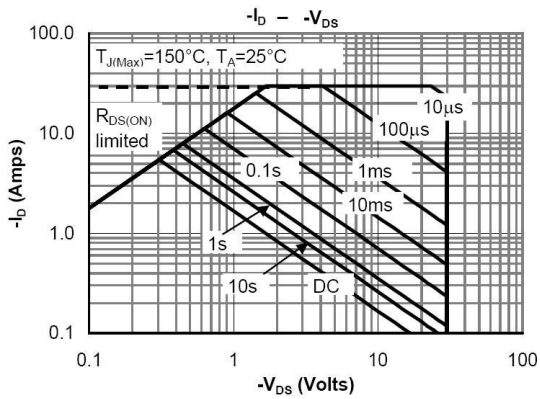

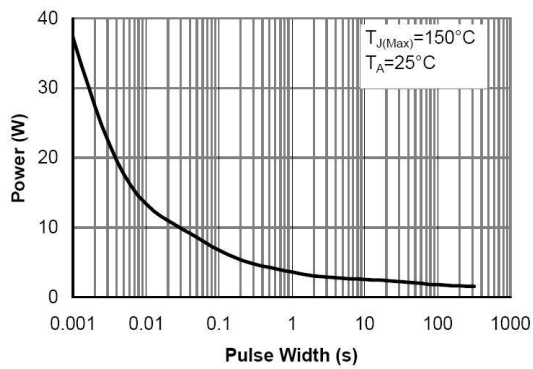

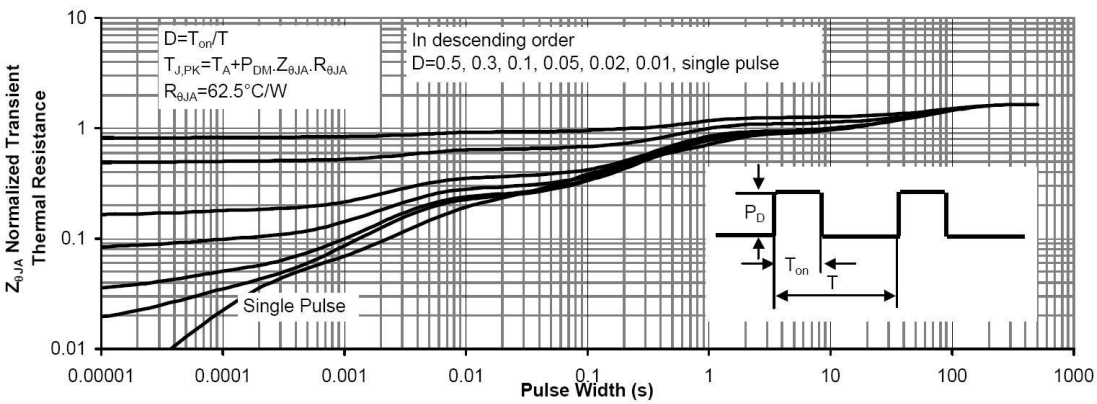

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