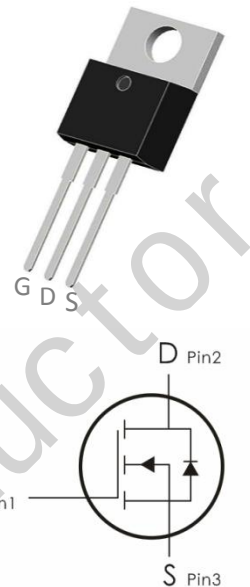


Description:

This N-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge. It can be used in a wide variety of applications.

Features:

- 1) $V_{DS}=100V, I_D=15A, R_{DS(on)} < 90m\ \Omega @ V_{GS}=10V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra low $R_{DS(on)}$.
- 5) Excellent package for good heat dissipation.



Absolute Maximum Ratings: ($T_C=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current- $T_C=25^\circ C$ ³	15	A
	Continuous Drain Current- $T_C=100^\circ C$	12	
P_D	Power Dissipation- $T_C=25^\circ C$	59	W
E_{AS}	Single pulse avalanche energy ⁵	6.1	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	2.1	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	62	$^\circ C/W$

Electrical Characteristics: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Sourtce Breakdown Voltage	V _{GS} =0V, I _D =250 μ A	100	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =80V	---	---	1	μ A
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 =250 μ A	1.5	---	2.5	V
R _{DS(ON)}	Drain-Source On Resistance ¹	V _{GS} =10V, I _D =10A	---	67	90	m Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance ²	V _{DS} =15V, V _{GS} =0V, f=1MHz	---	1535	---	pF
C _{Oss}	Output Capacitance ²		---	60	--	
C _{rss}	Reverse Transfer Capacitance ²		---	37	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =50V, I _D =10A R _G =3.3 Ω	---	4.2	---	ns
t _r	Rise Time		---	8.2	---	ns
t _{d(off)}	Turn-Off Delay Time		---	35.6	---	ns
t _f	Fall Time		---	9.6	---	ns
Q _g	Total Gate Charge	V _{GS} =10V, V _{DS} =80V, I _D =10A	---	26.2	---	nC
Q _{gs}	Gate-Source Charge		---	4.6	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	5.1	---	nC
Drain-Source Diode Characteristics						
I _S	V _G =V _D =0V ³		---	---	15	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _D =1A	---	---	1.2	V
T _{rr}	Reverse Recovery Time	I _F =10A, V _{GS} =0V	---	37	---	NS

Qrr	Reverse Recovery Charge	$di/dt=100A/us$	---	27.3	---	NC
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Notes:

- 1: Pulse test; pulse width $\leq 300us$, duty cycle $\leq 2\%$.
- 2: Guaranteed by design, not subject to production testing.
- 3: Package limitation current is 10A.
- 4: Repetitive rating, pulse width limited by max junction temperature.
- 5: Starting $T_J = 25^\circ C$, $L = 0.1mH$, $I_{AS} = 11A$.

Typical Characteristics: ($T_C=25^\circ C$ unless otherwise noted)

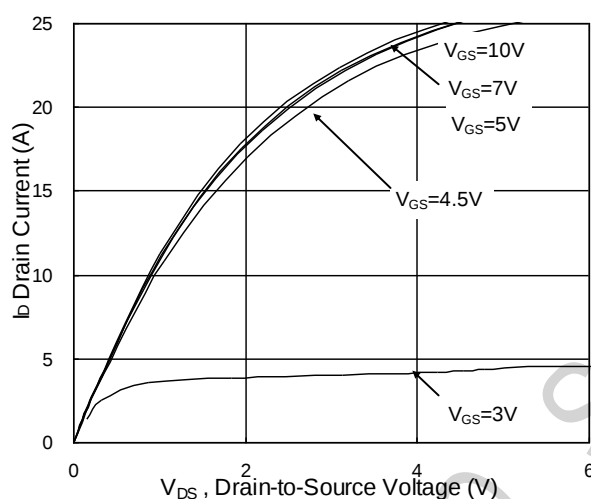


Fig.1 Typical Output Characteristics

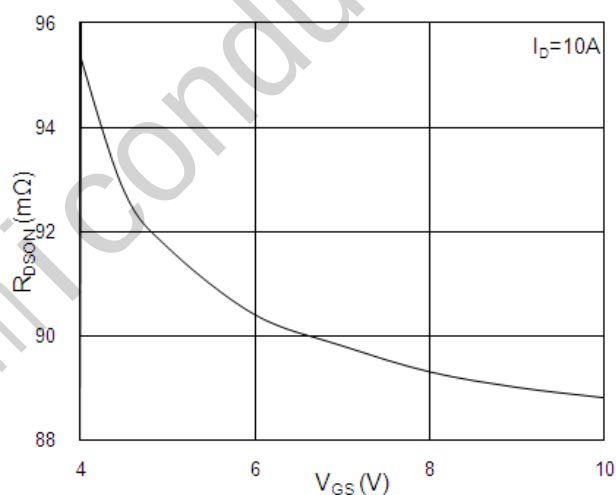


Fig.2 On-Resistance vs G-S Voltage

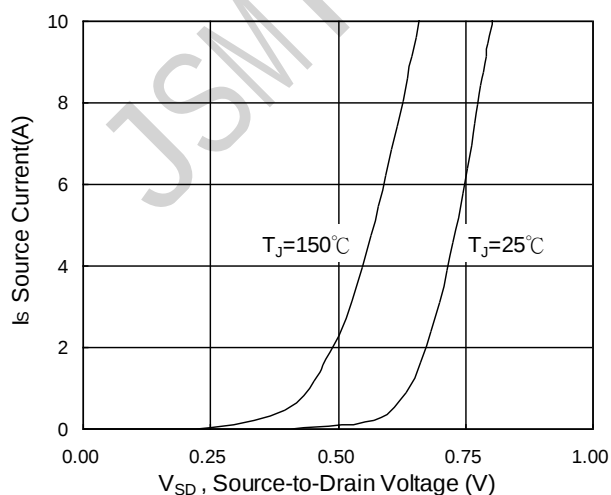


Fig.3 Source Drain Forward Characteristics

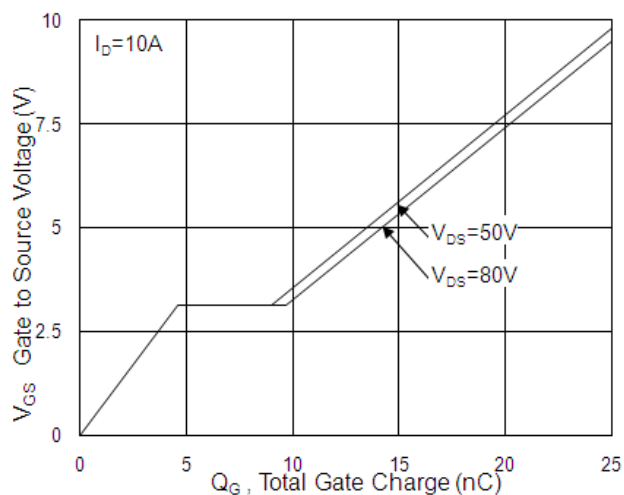
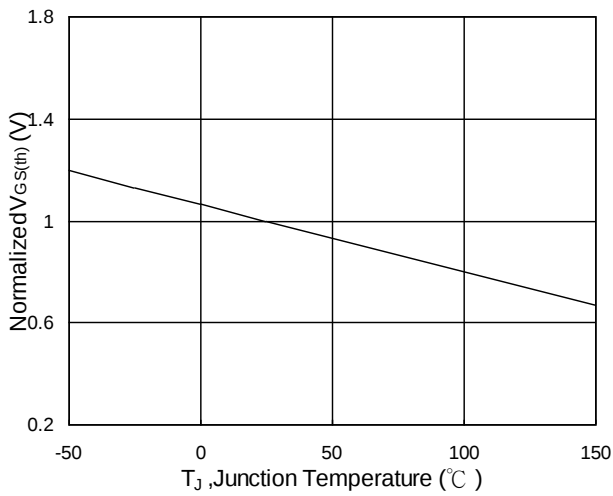
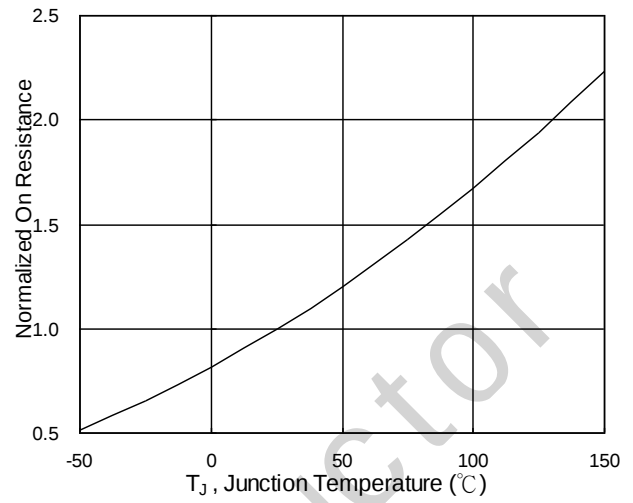
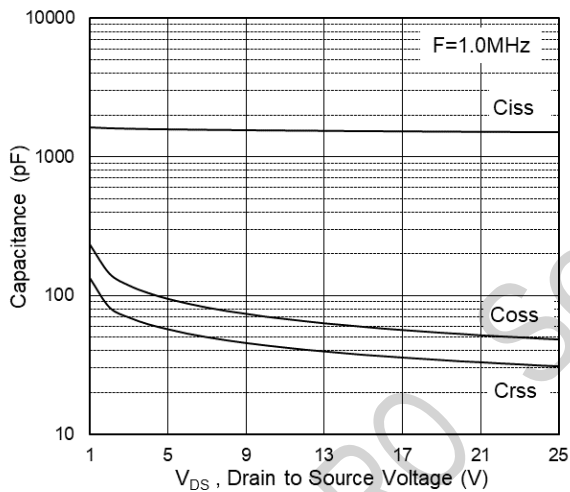
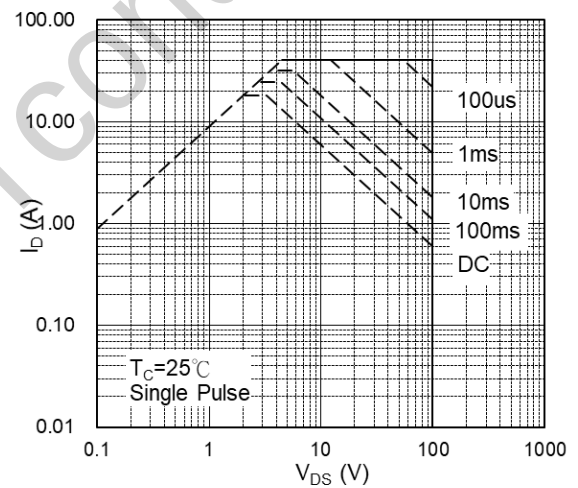
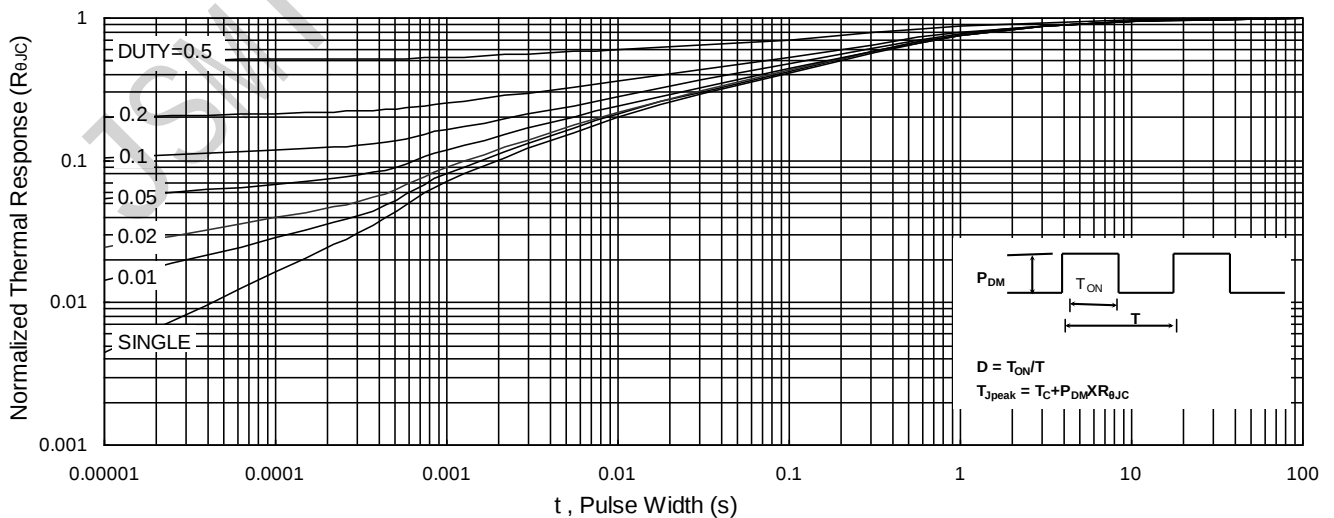


Fig.4 Gate-Charge Characteristics


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

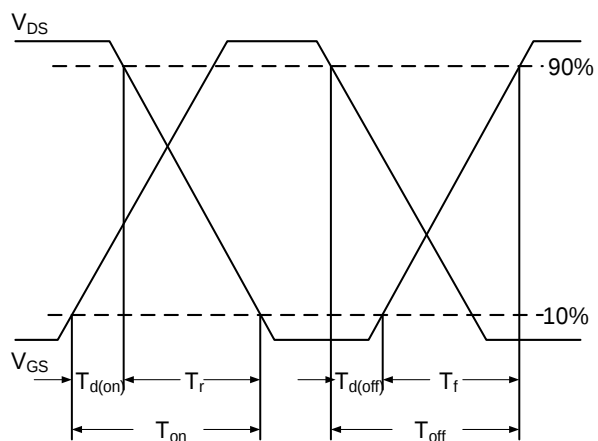


Fig.10 Switching Time Waveform

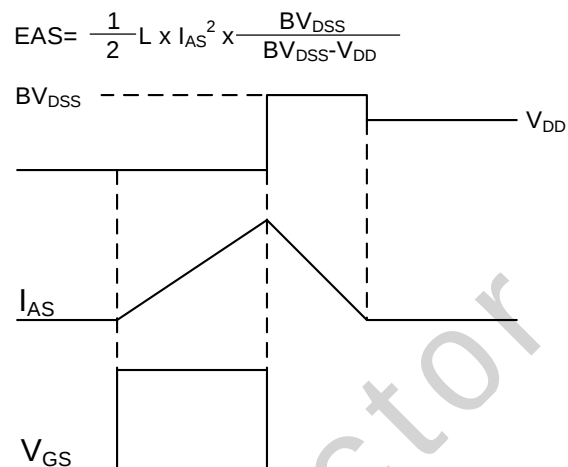


Fig.11 Unclamped Inductive Switching Waveform