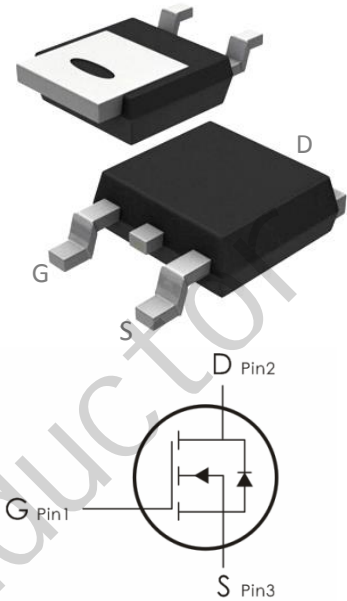


Description:

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) $V_{DS}=200V, I_D=9A, R_{DS(ON)} < 300m\Omega @ V_{GS}=10V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra $R_{DS(ON)}$.
- 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	200	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current- $T_C=25^\circ C$	9	A
	Continuous Drain Current- $T_C=100^\circ C$	5.6	
I_{DM}	Pulsed Drain Current	20	
P_D	Power Dissipation($T_C=25^\circ C$)	55	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case ²	2.3	$^\circ C/W$

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\ \mu\text{A}$	200	215	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS}=0V, V_{DS}=200V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0A$	---	---	± 100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage ³	$V_{GS}=V_{DS}, I_D=250\ \mu\text{A}$	1	1.7	2.5	V
$R_{DS(ON)}$	Drain-Source On Resistance ³	$V_{GS}=10V, I_D=4.5A$	---	260	300	m Ω
Dynamic Characteristics						
C_{iss}	Input Capacitance ⁴	$V_{DS}=25V, V_{GS}=0V, f=1\text{MHz}$	---	539	---	pF
C_{oss}	Output Capacitance ⁴		---	89	---	
C_{rss}	Reverse Transfer Capacitance ⁴		---	34	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time ⁴	$V_{DD}=150V, I_D=4.5A,$ $R_{GEN}=5\ \Omega$	---	6.3	---	ns
t_r	Rise Time ⁴		---	10	---	ns
$t_{d(off)}$	Turn-Off Delay Time ⁴		---	19	---	ns
t_f	Fall Time ⁴		---	11	---	ns
Q_g	Total Gate Charge ⁴	$V_{GS}=10V, V_{DS}=160V,$ $I_D=4.5A$	---	15	---	nC
Q_{gs}	Gate-Source Charge ⁴		---	3.3	---	nC
Q_{gd}	Gate-Drain "Miller" Charge ⁴		---	5	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage	$V_{GS}=0V, I_D=4.5A$	---	---	1.2	V
I_S	Continuous Drain Current	$V_D=V_G=0V$	---	---	9	A
I_{SM}	Pulsed Drain Current	$V_D=V_G=0V$	---	---	20	A

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\ \mu\text{s}$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production

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

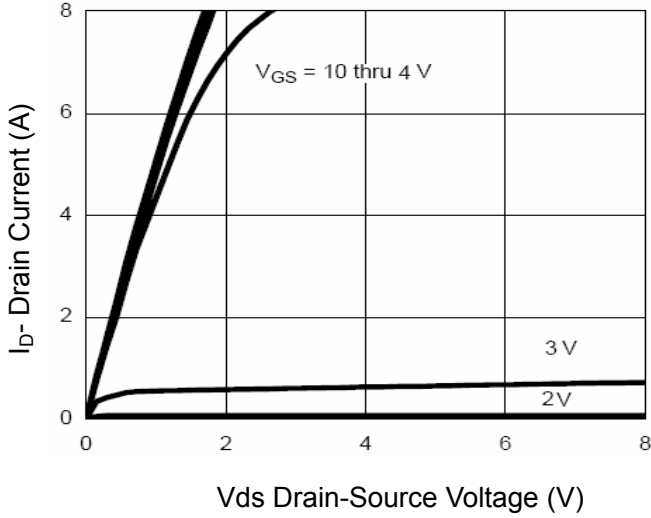


Figure 1 Output Characteristics

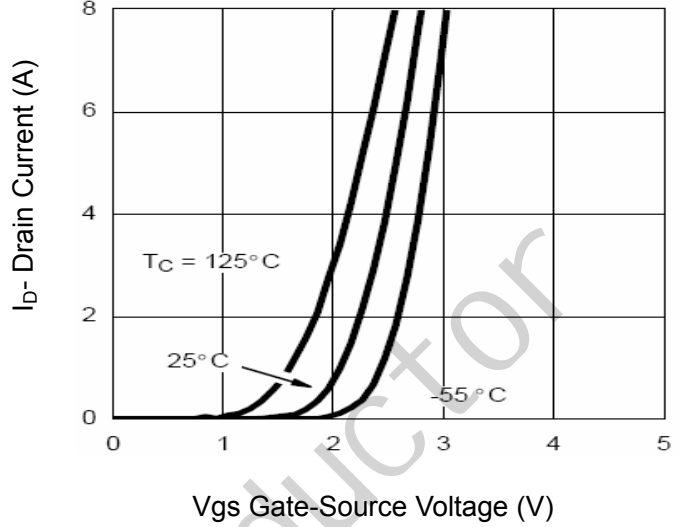


Figure 2 Transfer Characteristics

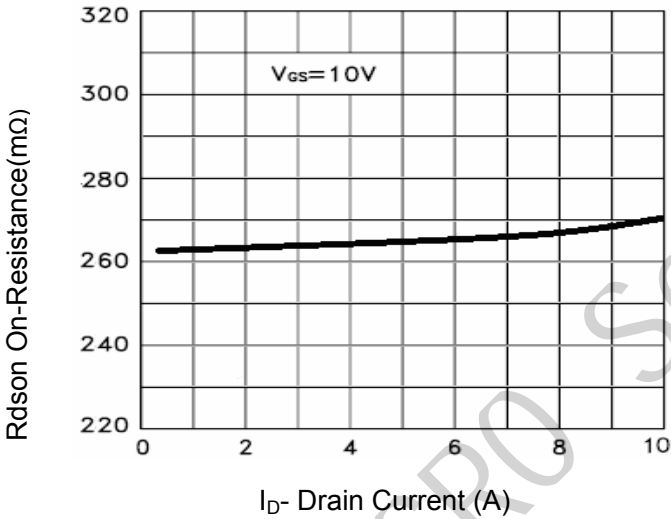


Figure 3 Rdson- Drain Current

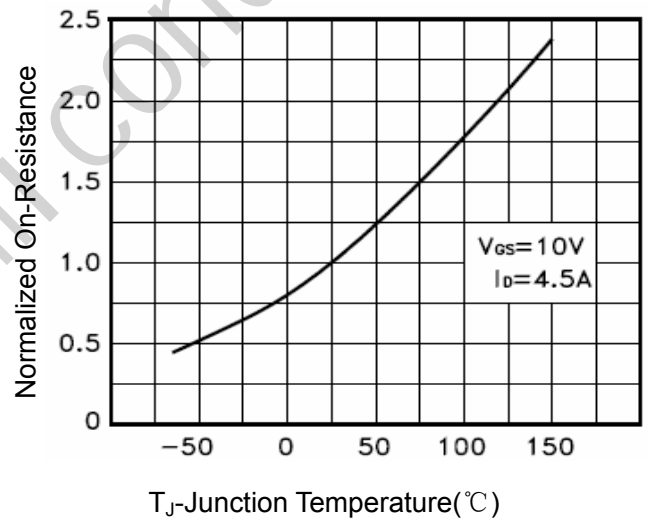


Figure 4 Rdson-Junction Temperature

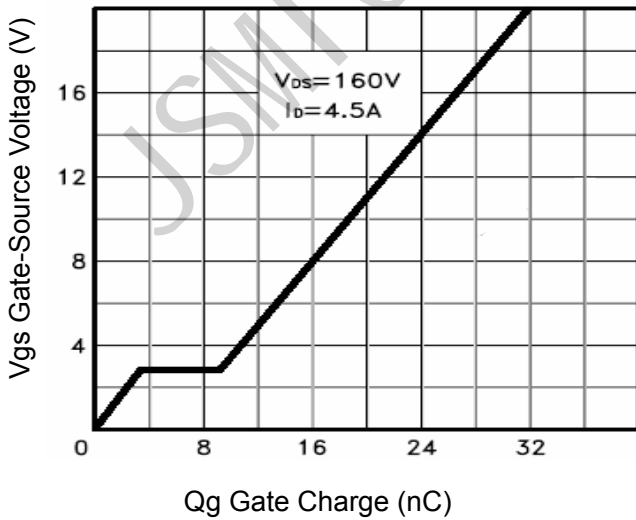


Figure 5 Gate Charge

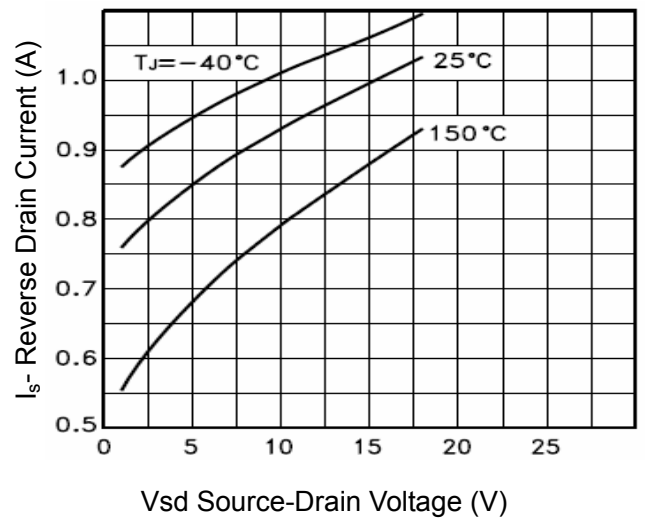
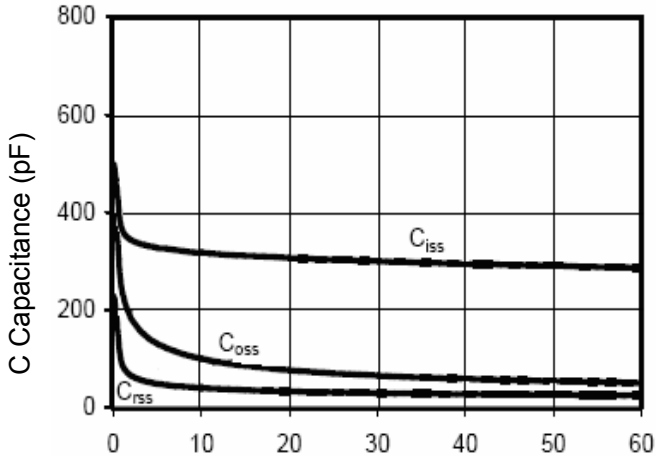
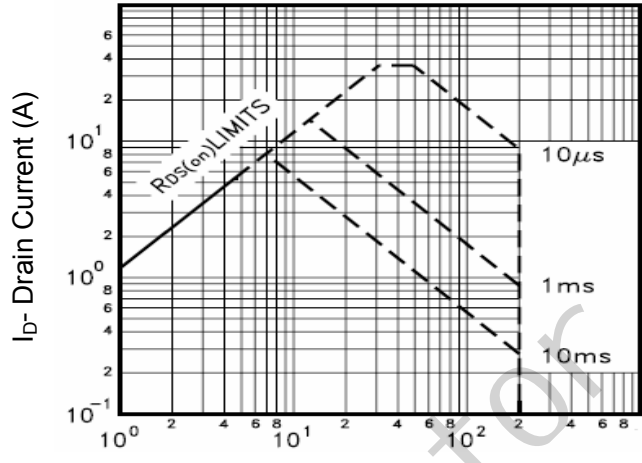


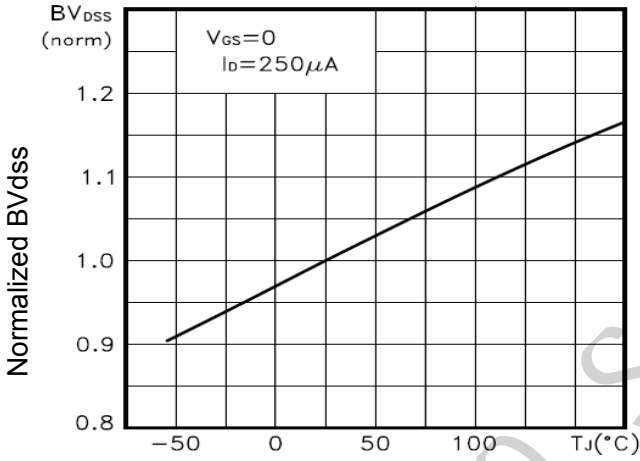
Figure 6 Source- Drain Diode Forward



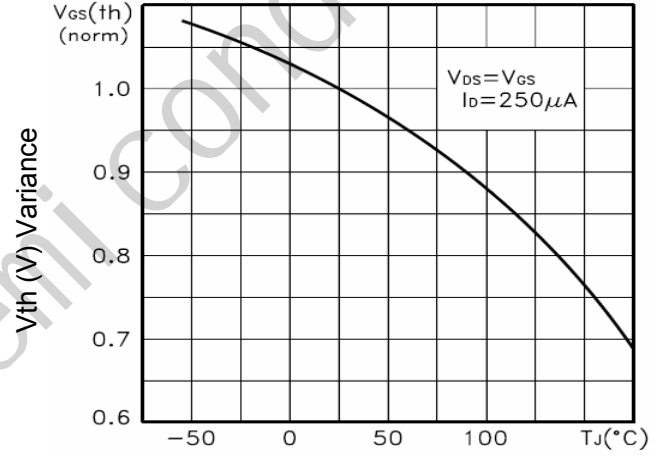
Vds Drain-Source Voltage (V)
Figure 7 Capacitance vs Vds



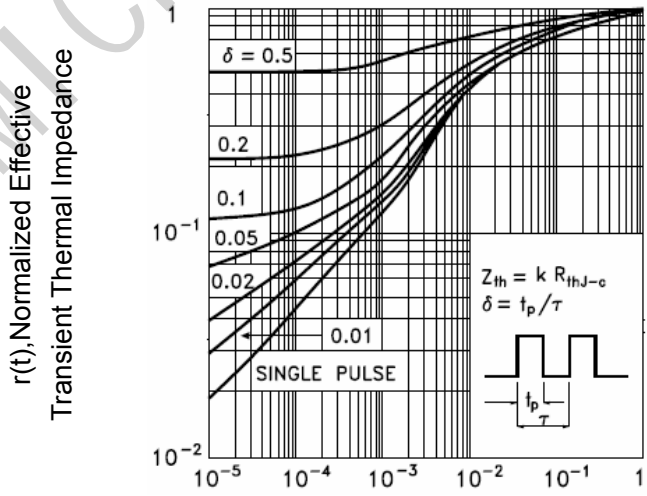
Vds Drain-Source Voltage (V)
Figure 8 Safe Operation Area



T_J-Junction Temperature(°C)
Figure 9 BV_{DSS} vs Junction Temperature



T_J-Junction Temperature(°C)
Figure 10 V_{GS(th)} vs Junction Temperature



Square Wave Pulse Duration(sec)
Figure 11 Normalized Maximum Transient Thermal Impedance

