

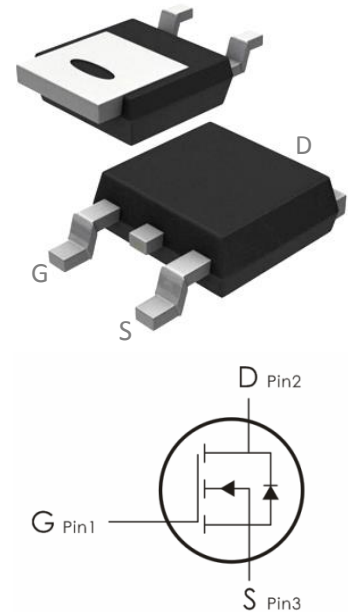
Description:

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) $V_{DS}=150V, I_D=15A, R_{DS(ON)}<290m\ \Omega @V_{GS}=10V$
- 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: ($T_C=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	150	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current- $T_C=25^\circ\text{C}$	15	A
	Continuous Drain Current- $T_C=100^\circ\text{C}$	6.5	
	Pulsed Drain Current	58	
E_{AS}	Single Pulse Avalanche Energy ⁵	150	mJ
P_D	Power Dissipation, $T_C=25^\circ\text{C}$	30	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ\text{C}$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	4.17	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	--	

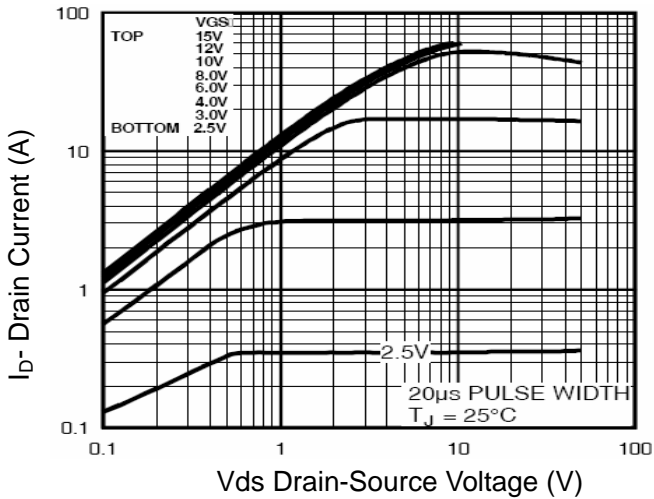
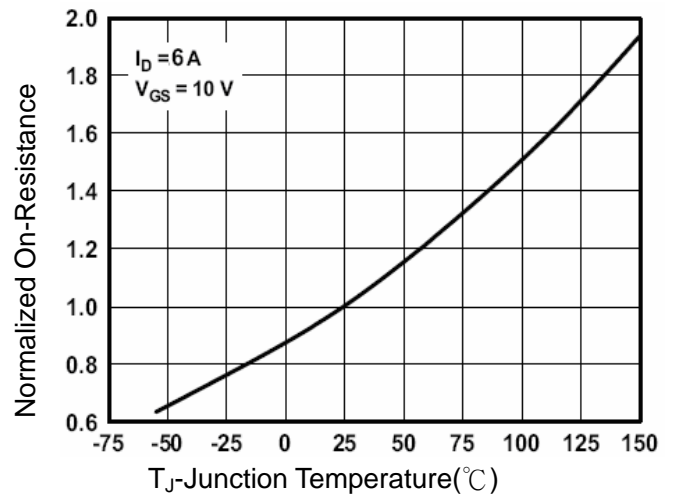
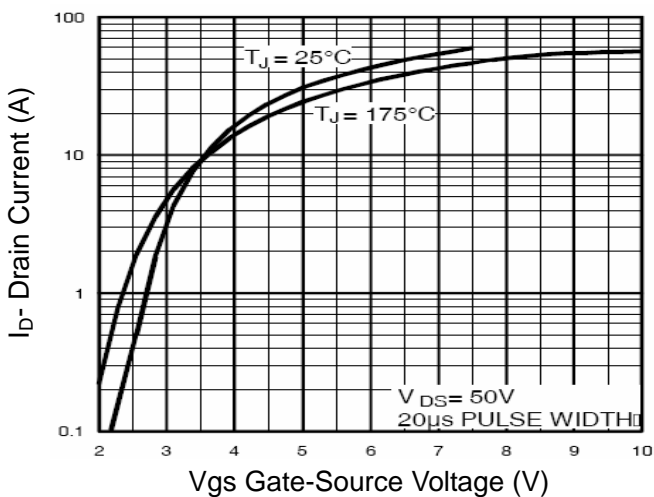
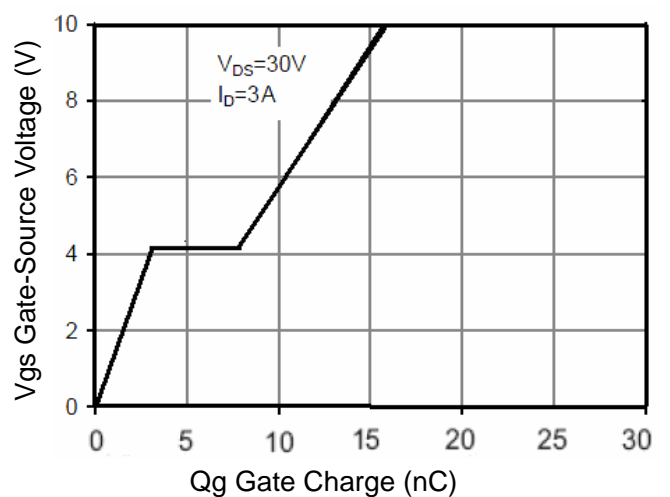
Electrical Characteristics: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

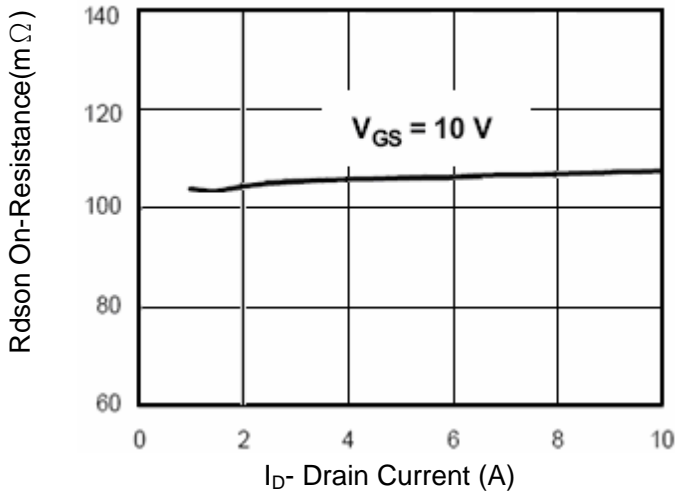
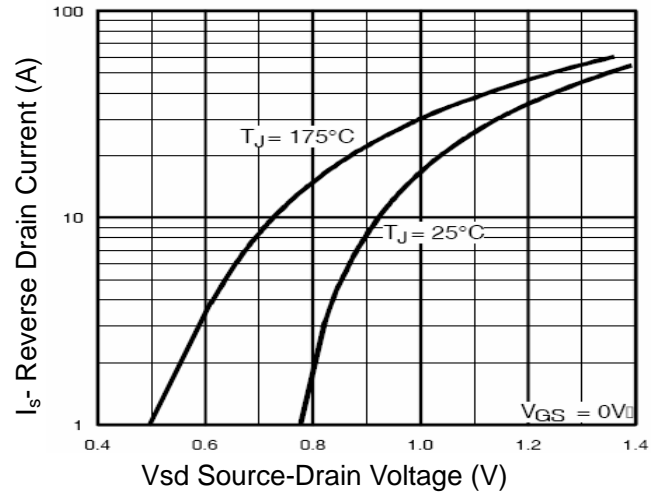
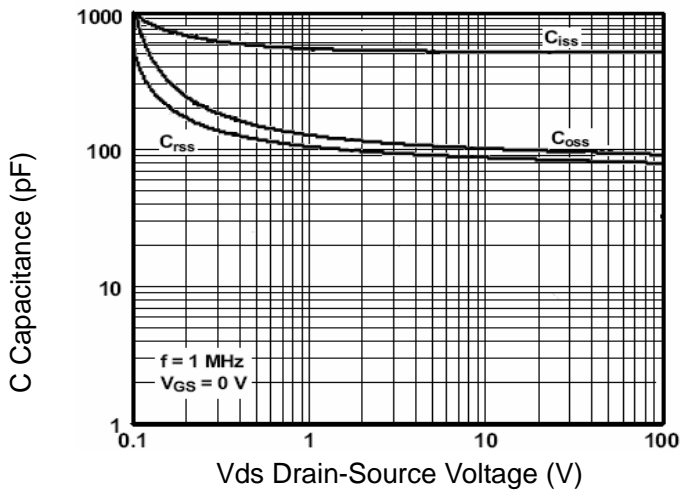
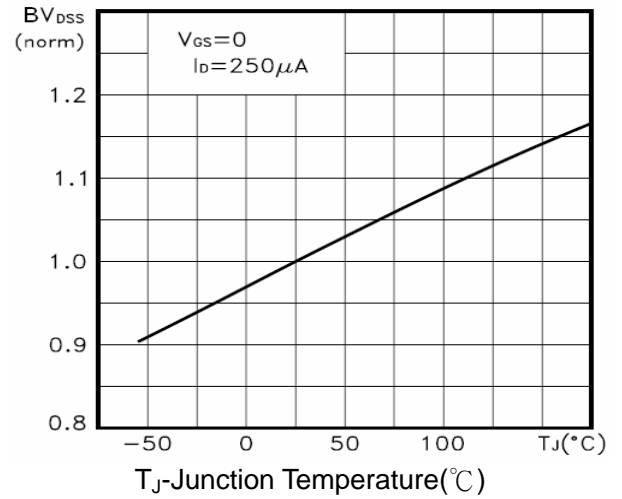
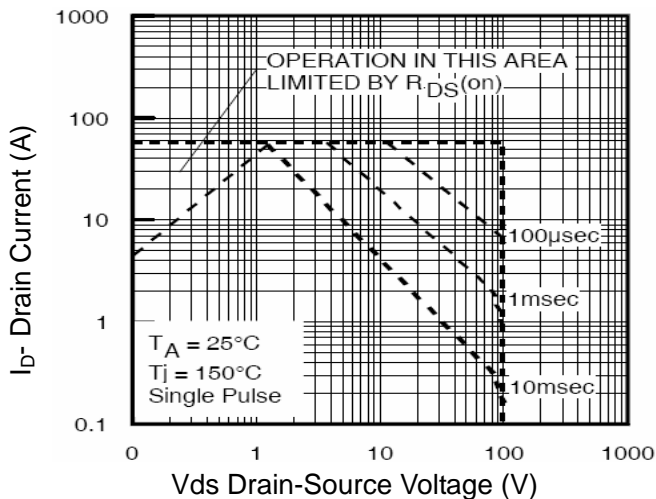
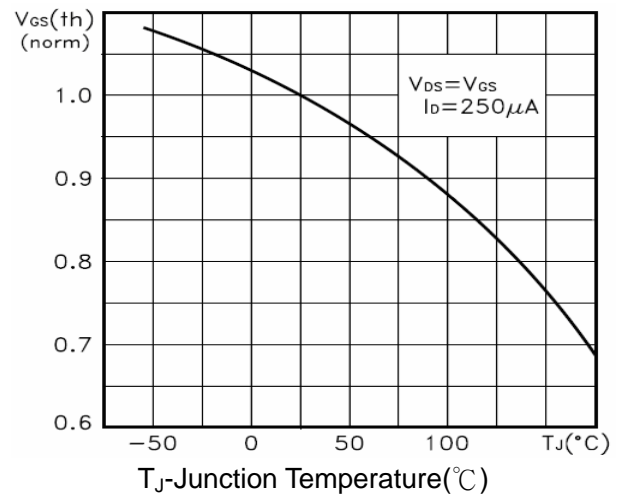
Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\ \mu\text{A}$	150	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS}=0V, V_{DS}=150V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0A$	---	---	± 100	nA
On Characteristics³						
$V_{GS(th)}$	GATE-Source Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\ \mu\text{A}$	1.5	1.8	2.5	V
$R_{DS(ON)}$	Drain-Source On Resistance ²	$V_{GS}=10V, I_D=5A$	---	255	290	$\text{m}\Omega$
G_{FS}	Forward Transconductance	$V_{DS}=25V, I_D=6A$	3.5	---	---	S
Dynamic Characteristics⁴						
C_{iss}	Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1\text{MHz}$	---	690	---	pF
C_{oss}	Output Capacitance		---	120	---	
C_{rss}	Reverse Transfer Capacitance		---	90	---	
Switching Characteristics⁴						
$t_{d(on)}$	Turn-On Delay Time	$V_{DD}=30V, I_D=2A,$ $V_{GS}=10V, R_{GEN}=2.5\Omega$	---	11	---	ns
t_r	Rise Time		---	7.4	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	35	---	ns
t_f	Fall Time		---	9.1	---	ns
Q_g	Total Gate Charge	$V_{GS}=10V, V_{DS}=30V,$ $I_D=3A$	---	15.5	---	nC
Q_{gs}	Gate-Source Charge		---	3.2	---	nC
Q_{gd}	Gate-Drain "Miller" Charge		---	4.7	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage ³	$V_{GS}=0V, I_S=9A$	---	---	1.5	V
I_S	Continuous Source Current ²			---	15	A

trr	Reverse Recovery Time	T _J = 25°C, I _F =6A di/dt = 100A/μs(Note3)	21	---	Ns
qrr	Reverse Recovery Charge		97	---	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 ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production
5. EAs condition : T_J=25°C, V_{DD}=10V, V_G=10V, L=0.5mH, R_g=25Ω,

Typical Characteristics: (T_c=25°C unless otherwise noted)

Figure 1 Output Characteristics

Figure 4 Rdson-Junction Temperature

Figure 2 Transfer Characteristics

Figure 5 Gate Charge


Figure 3 Rdson- Drain Current

Figure 6 Source- Drain Diode Forward

Figure 7 Capacitance vs Vds

Figure 9 BV_{DSS} vs Junction Temperature

Figure 8 Safe Operation Area

Figure 10 V_{GS(th)} vs Junction Temperature

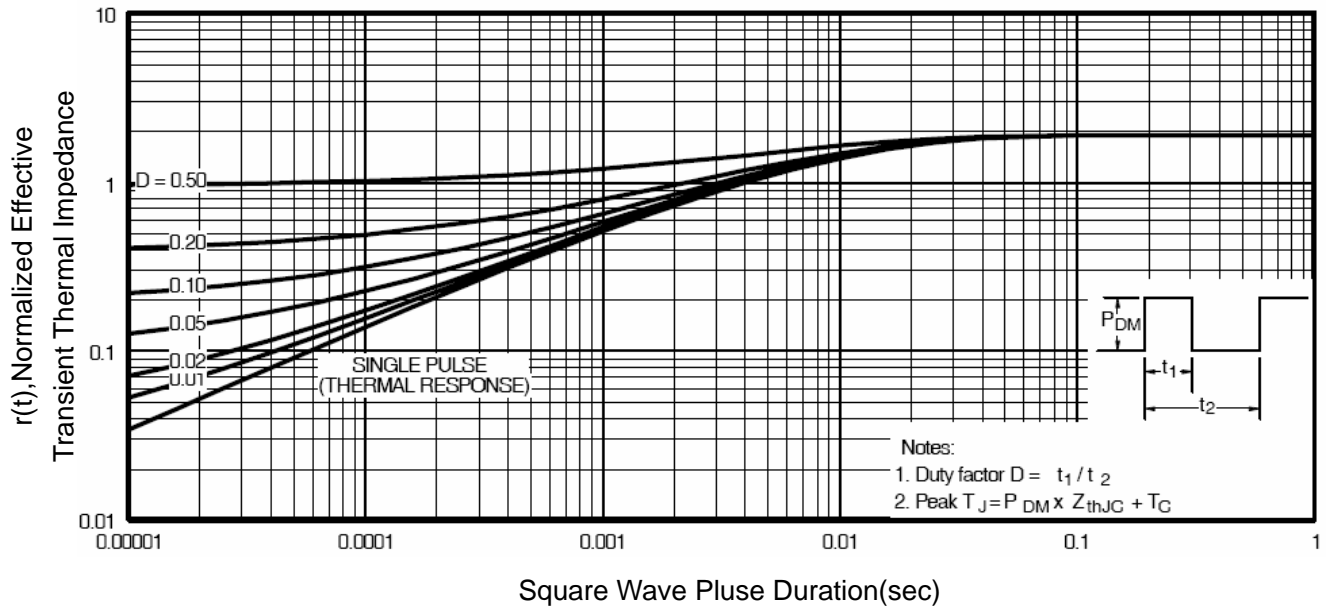


Figure 11 Normalized Maximum Transient Thermal Impedance



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