

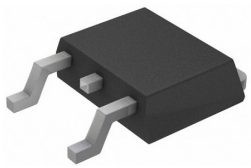
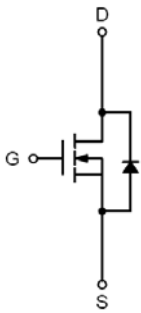
Features

- $V_{DSS}=80V / V_{GSS}=\pm 25V / I_D=88A$
 $R_{DS(ON)}=11m\Omega(\text{Max.})@V_{GS}=10V$
- Avalanche Rated
- Reliable and Rugged
- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance

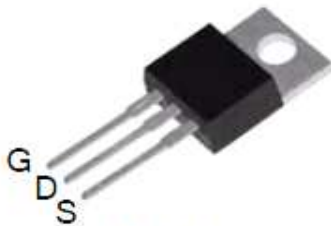
Applications

- Synchronous Rectification
- Power Management in Inverter System

Pin Description

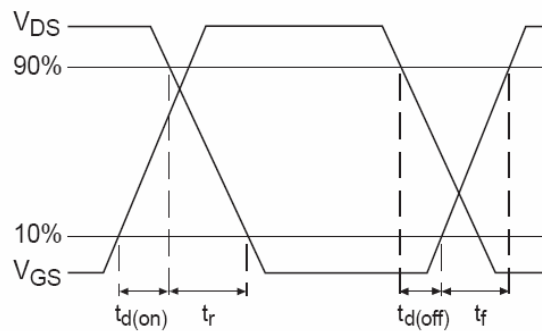
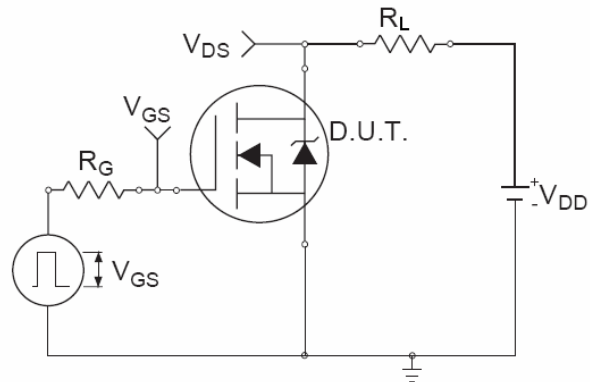


TO-252



TO-220

Switching Time Test Circuit and Waveforms



Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Typical	Unit	
V_{DSS}	Drain-Source Voltage	80	V	
V_{GSS}	Gate -Source Voltage	± 25	V	
I_D	Continuous Drain Current	$T_C=100^{\circ}\text{C}$	50	A
			88	A
I_{DP}	300us Pulsed Drain Current Tested	$T_C=25^{\circ}\text{C}$	280	A
I_S	Diode Continuous Forward Current		70	A
EAS	Single Pulse Avalanche Energy		550	mJ
T_J	Operating Junction Temperature		175	$^{\circ}\text{C}$
T_{STG}	Storage Temperature Range		-55 ~ 175	$^{\circ}\text{C}$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ Unless otherwise noted)

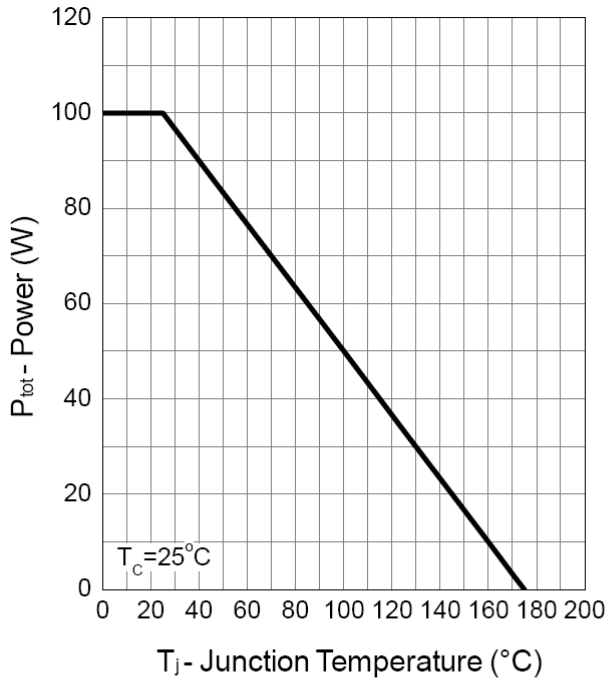
Symbol	Parameter	Test Conditions	Min.	Typ	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	80			V
$\Delta BV_{DSS}/\Delta T_J$	Breakdown Voltage Temp. Coe			0.073		
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-24V, V_{GS}=0V$ $T_J=85^{\circ}\text{C}$			1	uA
					30	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	2	3	4	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 25V, V_{DS}=0V$			± 100	nA
$R_{DS(on)}^1$	Drain-Source On-Resistance	$V_{GS}=10V, I_D=40A$		7	11	m Ω
Diode Characteristics						
V_{SD}^1	Diode Forward Voltage	$I_{SD}=20A, V_{GS}=0V$		0.8	1.3	V
t_{rr}	Reverse Recovery Time	$I_{SD}=40A,$		50		ns
Q_{rr}	Reverse Recovery Charge	$dI_{SD}/dt=100A/\mu s$		90		nC
Dynamic Characteristics²						
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V,$ Frequency=1MHz		1.3		Ω
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=30V$ Frequency=1MHz		3000	4200	pF
C_{oss}	Output Capacitance			350		
C_{riss}	Reverse Transfer Capacitance			250		
$t_{d(on)}$	Turn-On Delay Time	$V_{DD}=30V, R_L=30\Omega$ $I_D=1A, V_{GEN}=10V$ $R_G=6\Omega$		22	40	ns
t_r	Turn-On Rise Time			14	25	
$t_{d(off)}$	Turn-Off Delay Time			58	104	
t_f	Turn-Off Fall Time			25	45	
Gate Charge Characteristics²						
Q_g	Total Gate Charge	$V_{DS}=40V, V_{GS}=10V$ $I_D=40A$		77	108	nC
Q_{gs}	Gate-Source Charge			22		
Q_{gd}	Gate-Drain Charge			23		

Note: 1: Pulse test ; pulse width $\leq 300\text{ns}$, duty cycle $\leq 2\%$.

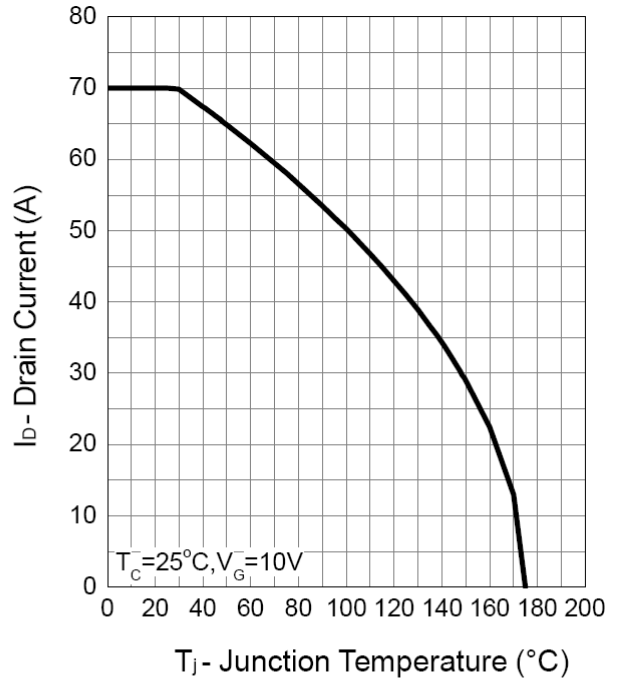
2: Guaranteed by design, not subject to production testing.

Typical Characteristics

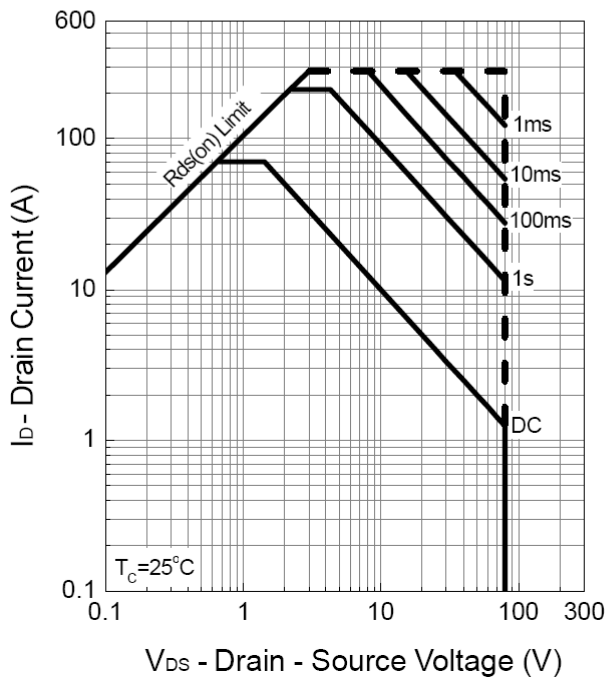
Power Dissipation



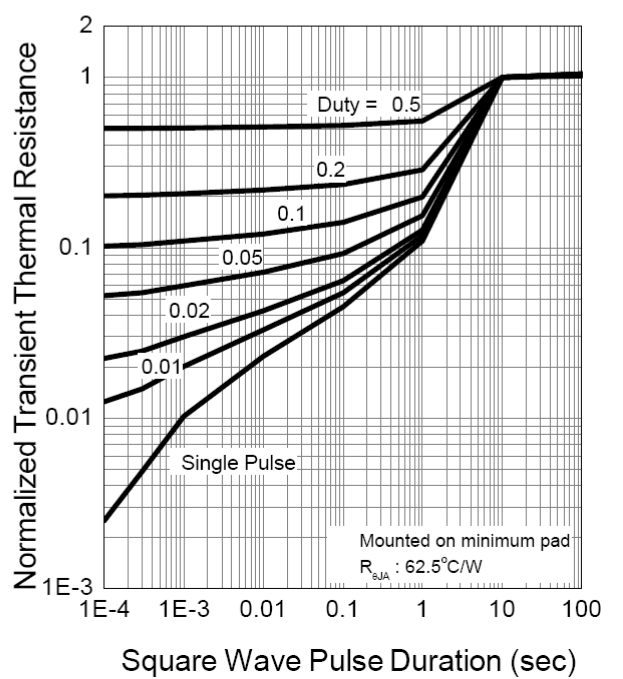
Drain Current



Safe Operation Area

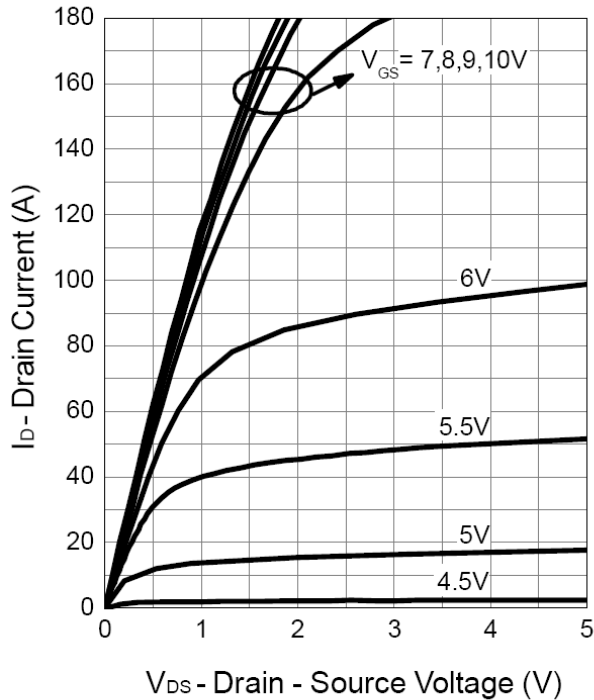


Thermal Transient Impedance

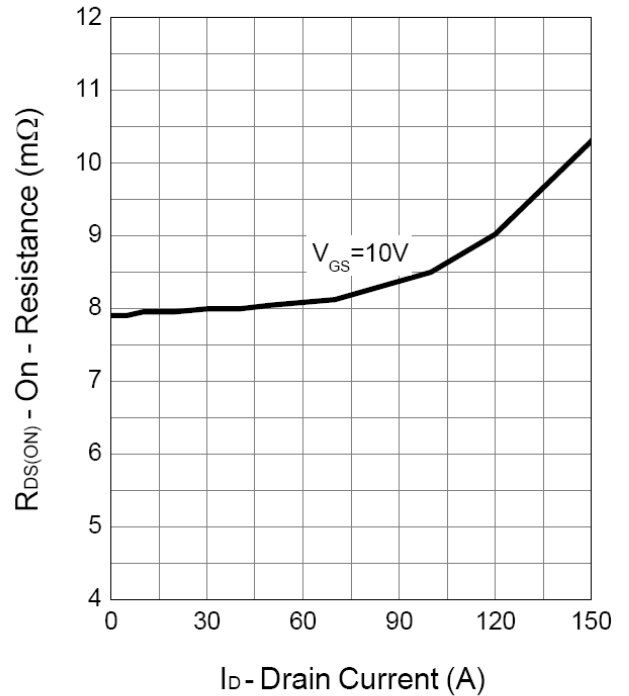


Typical Characteristics (Cont.)

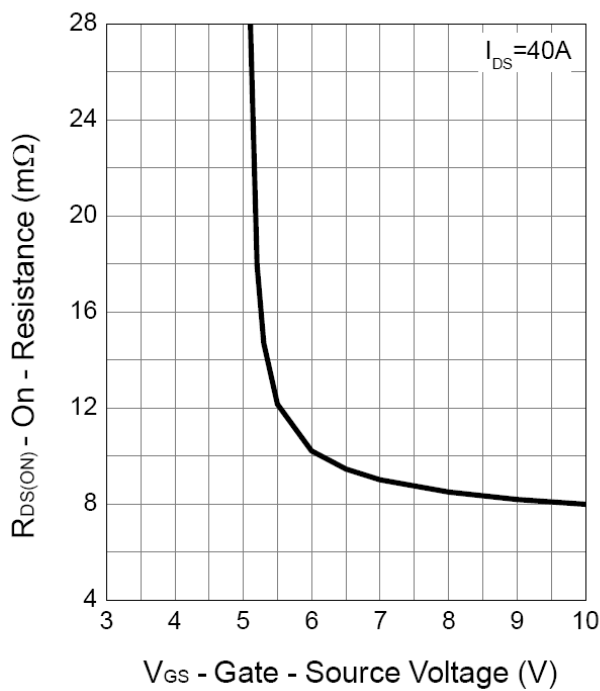
Output Characteristics



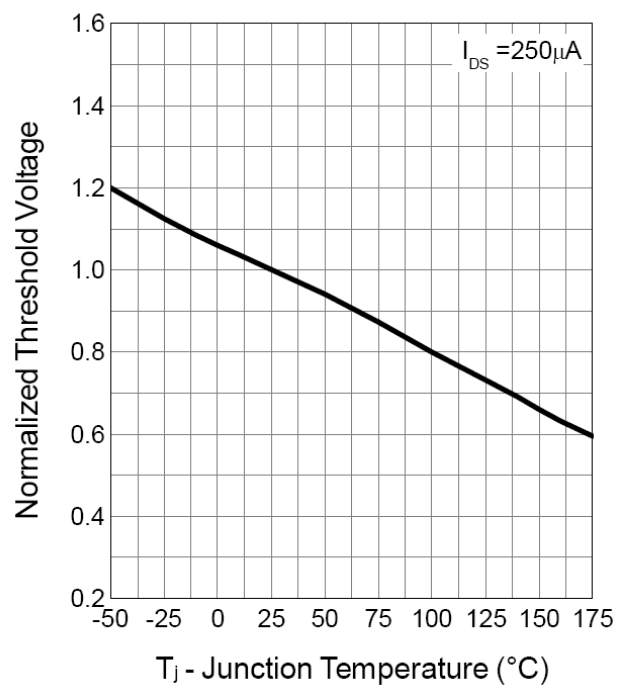
Drain-Source On Resistance



Gate-Source On Resistance

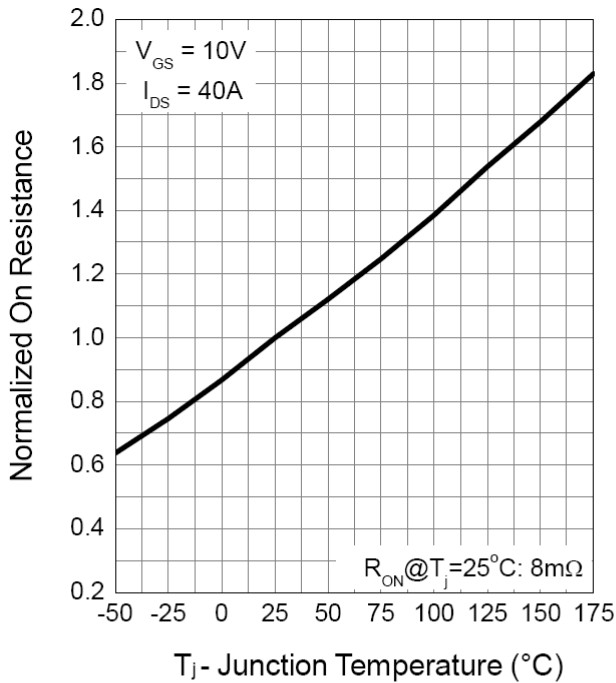


Gate Threshold Voltage

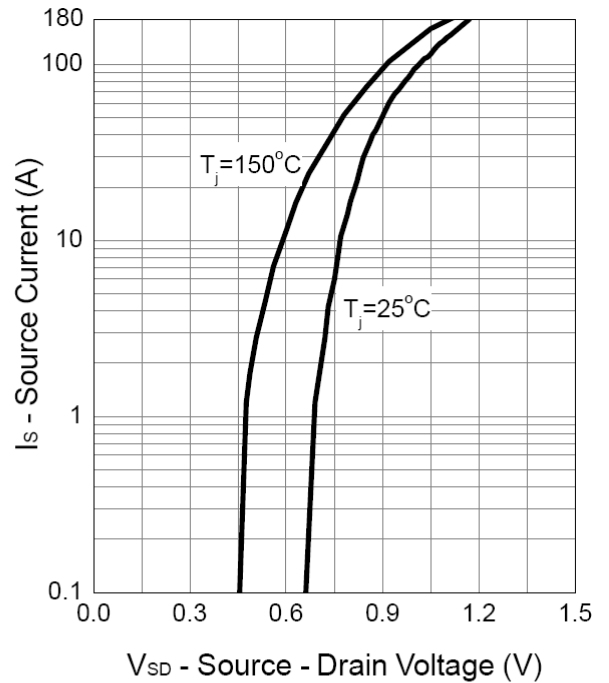


Typical Characteristics (Cont.)

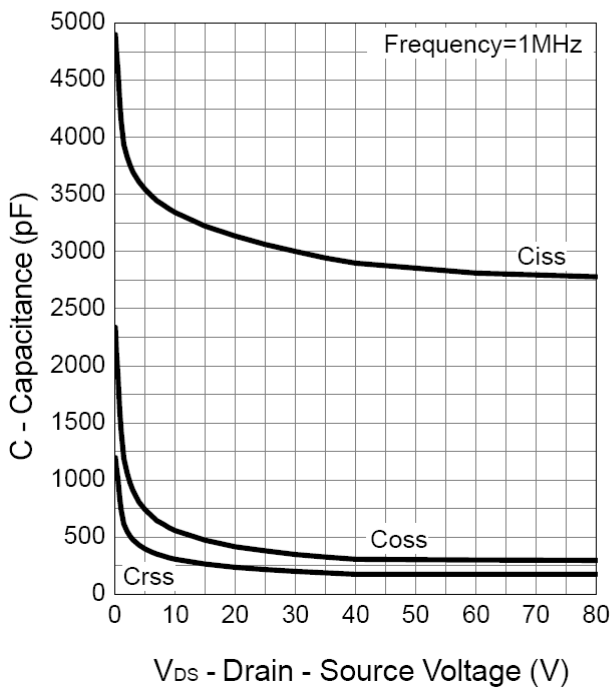
Drain-Source On Resistance



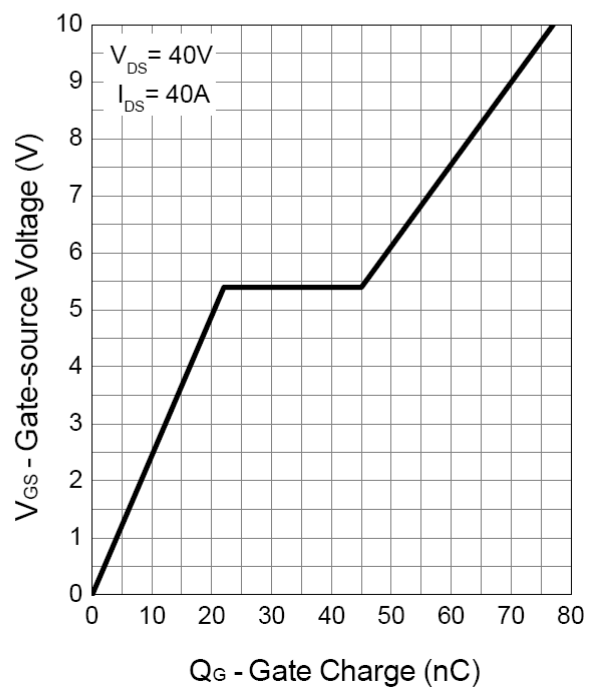
Source-Drain Diode Forward



Capacitance



Gate Charge



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