

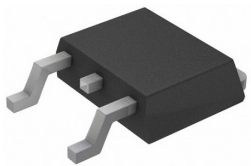
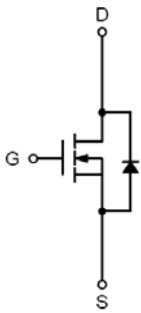
Features

- $V_{DSS}=80V / V_{GSS}=\pm 25V / I_D=70A$
 $R_{DS(ON)}=11m\Omega(\text{Max.})@V_{GS}=10V$
- Avalanche Rated
- Reliable and Rugged
- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance

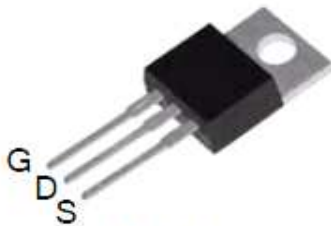
Applications

- Synchronous Rectification
- Power Management in Inverter System

Pin Description

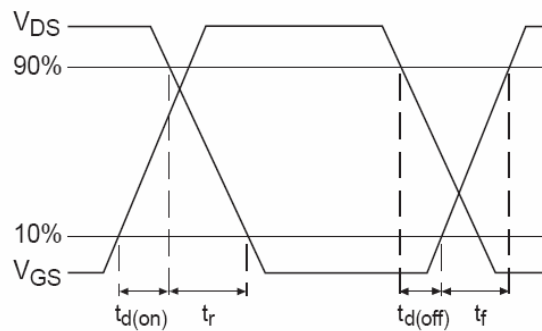
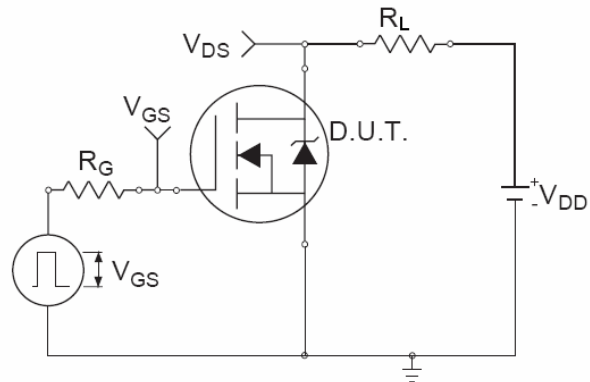


TO-252



TO-220

Switching Time Test Circuit and Waveforms



Absolute Maximum Ratings (T_A=25°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°C	50	A
			70	A
I _{DP}	300us Pulsed Drain Current Tested	280	A	
I _S	Diode Continuous Forward Current	70	A	
EAS	Single Pulse Avalanche Energy	550	mJ	
T _J	Operating Junction Temperature	175	°C	
T _{STG}	Storage Temperature Range	-55 ~ 175	°C	

Electrical Characteristics (T_A=25°C Unless otherwise noted)

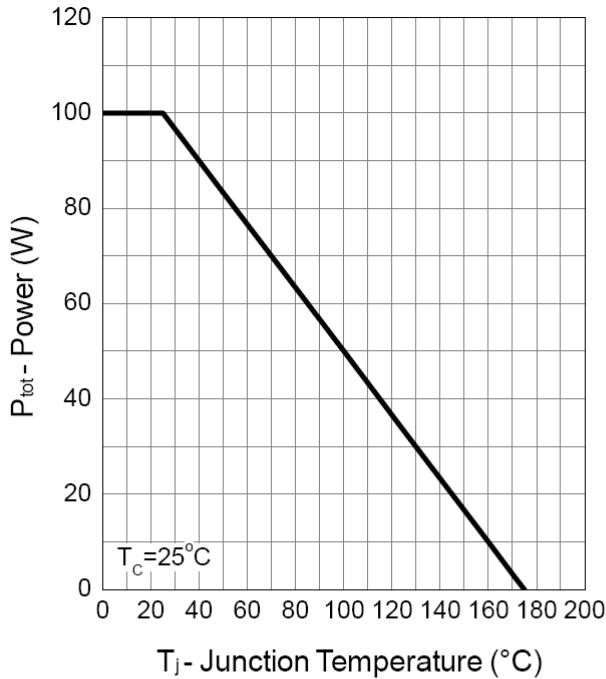
Symbol	Parameter	Test Conditions	Min.	Typ	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	80			V
ΔBV _{DSS} /ΔT _J	Breakdown Voltage Temp. Coe			0.073		
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-24V, V _{GS} =0V T _J =85°C			1	uA
					30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250uA	2	3	4	V
I _{GSS}	Gate Leakage Current	V _{GS} =±25V, V _{DS} =0V			±100	nA
R _{DSON} ¹	Drain-Source On-Resistance	V _{GS} =10V, I _D =40A		8	11	mΩ
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/us		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 _{rss}	Reverse Transfer Capacitance			250		
t _{d(on)}	Turn-On Delay Time	V _{DD} =30V, R _L =30Ω I _D =1A, V _{GEN} =10V R _G =6Ω		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 ≤ 300ns, duty cycle ≤ 2%.

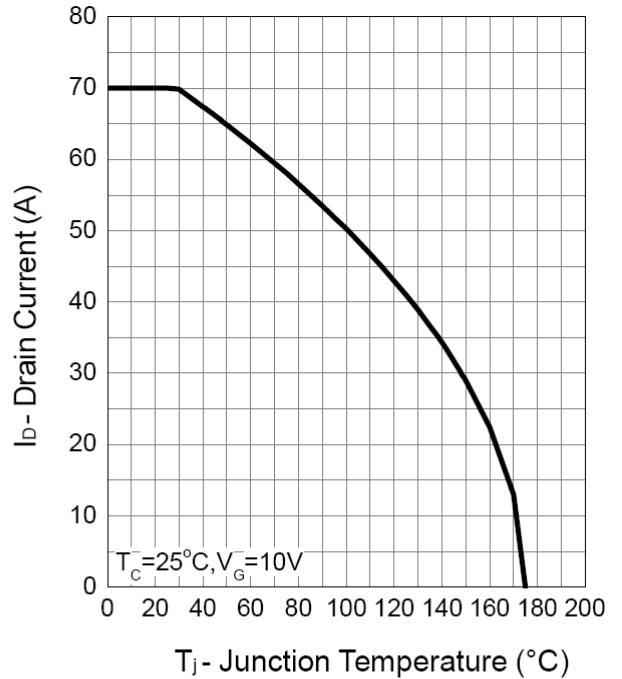
2: Guaranteed by design, not subject to production testing.

Typical Characteristics

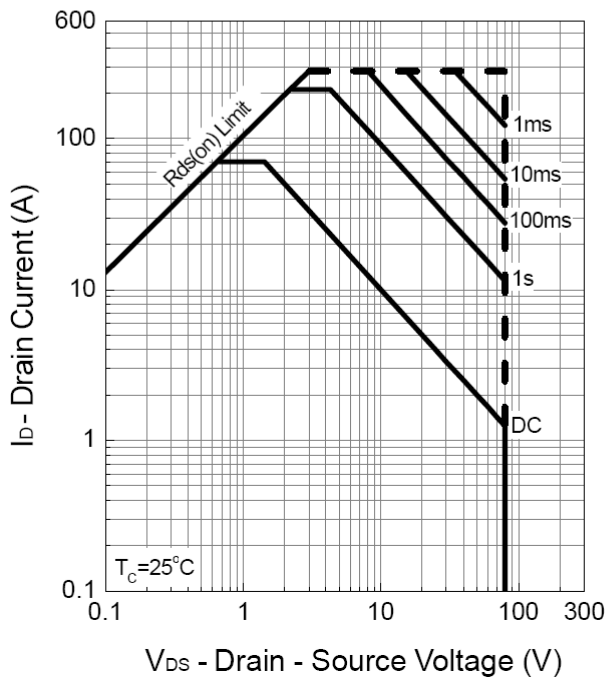
Power Dissipation



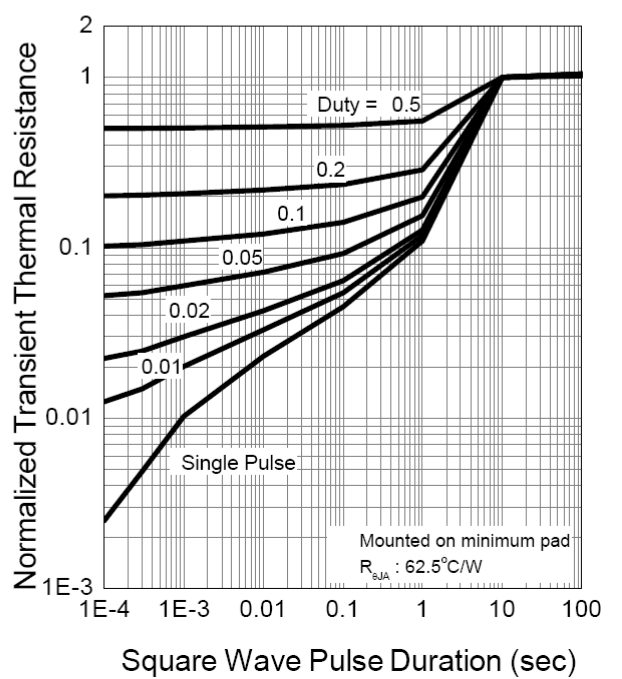
Drain Current



Safe Operation Area

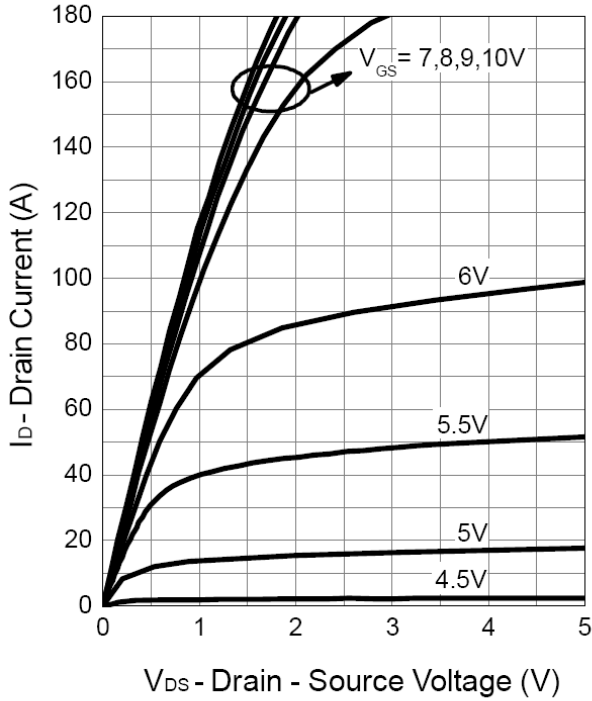


Thermal Transient Impedance

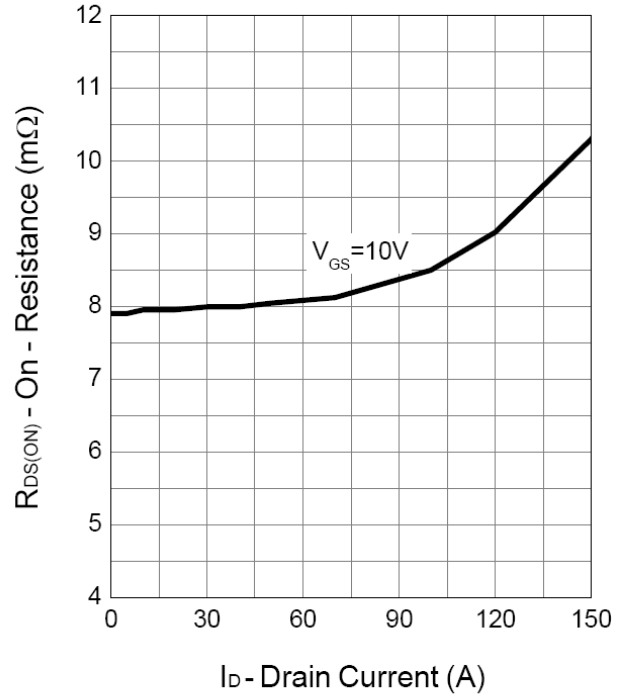


Typical Characteristics (Cont.)

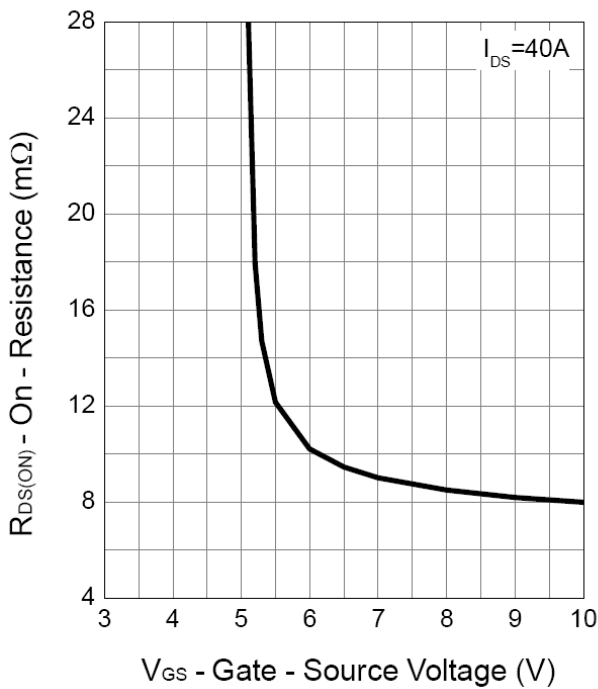
Output Characteristics



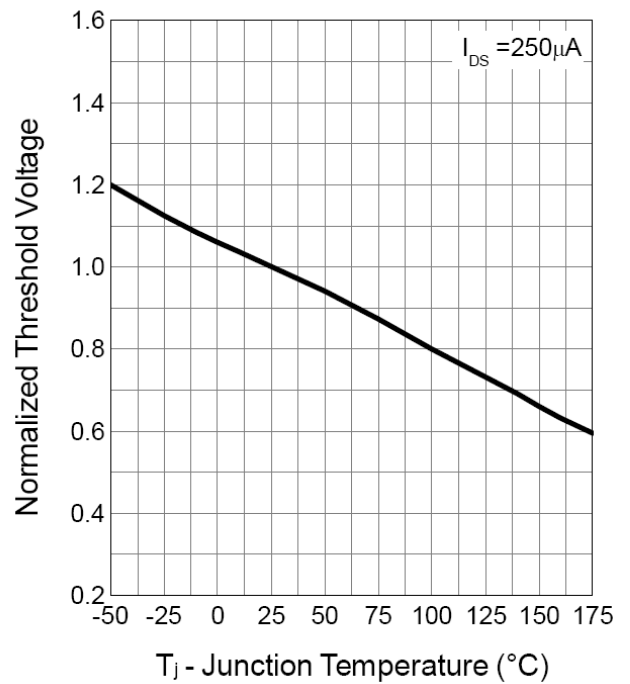
Drain-Source On Resistance



Gate-Source On Resistance

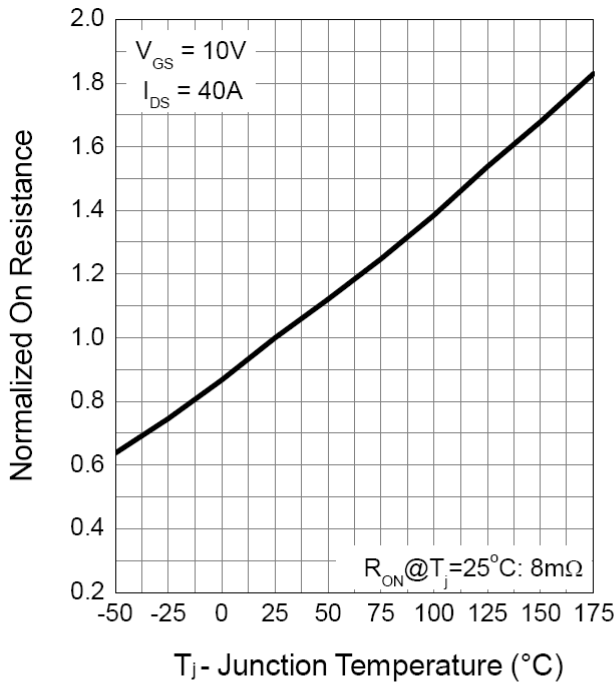


Gate Threshold Voltage

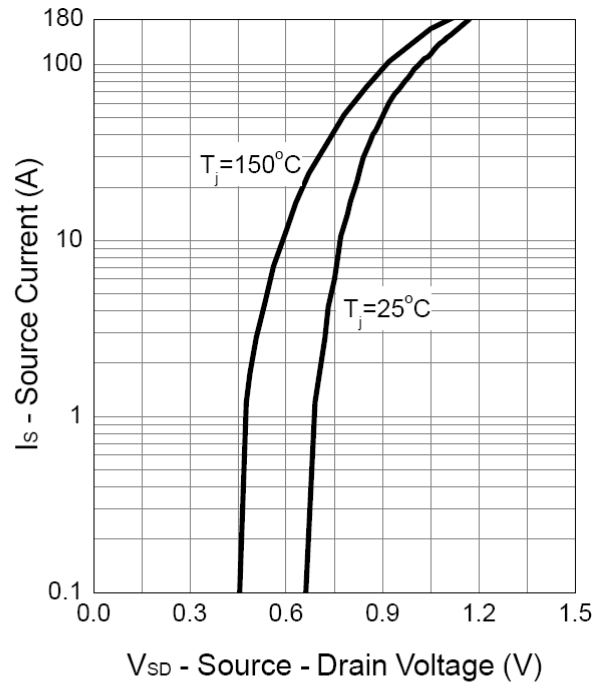


Typical Characteristics (Cont.)

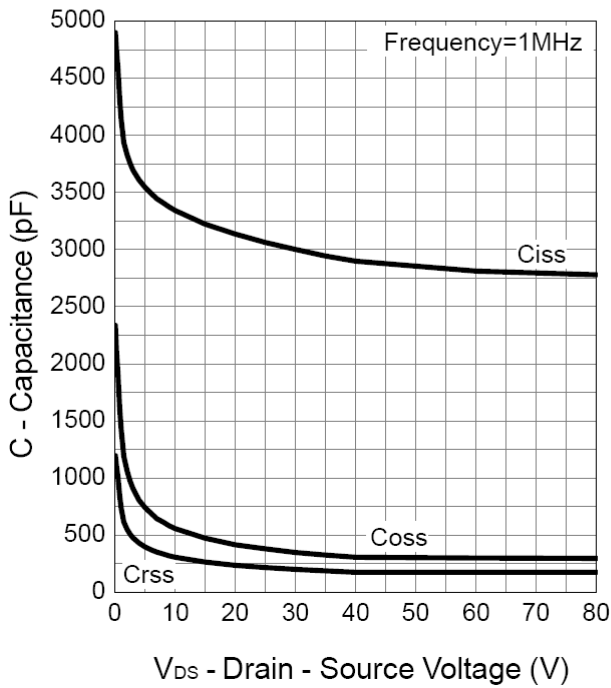
Drain-Source On Resistance



Source-Drain Diode Forward



Capacitance



Gate Charge

