

## 70V<sub>DS</sub>/±25V<sub>GS</sub>/80A(I<sub>D</sub>) N-Channel Enhancement Mode MOSFET

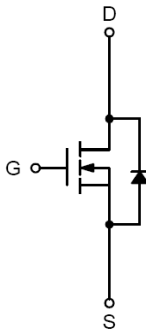
### Features

- V<sub>DSS</sub>=70V/V<sub>GSS</sub>=±25V/I<sub>D</sub>=80A  
R<sub>DS(ON)</sub>=8mΩ(max.)@V<sub>GS</sub>=10V
- Super High Dense Cell Design
- Reliable and Rugged
- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance

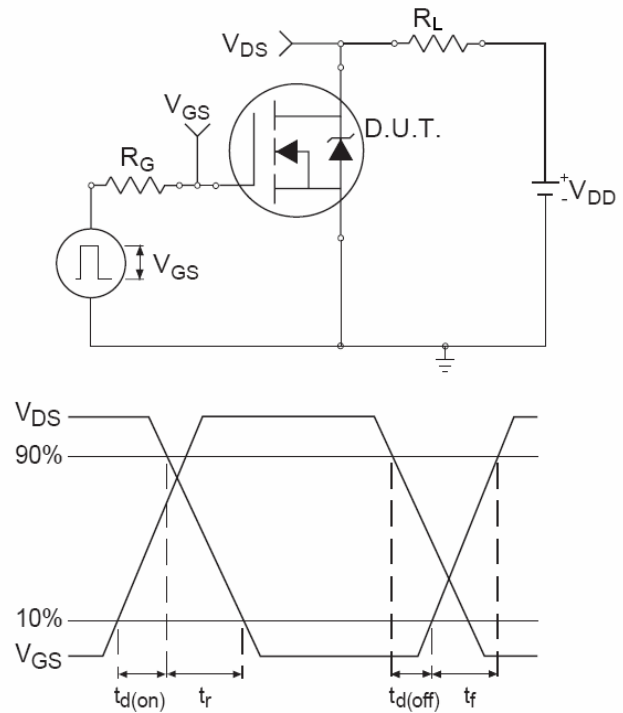
### Applications

- Power Management in Inverter System
- Synchronous Rectification

### Pin Description



### Switching Time Test Circuit and Waveforms



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## Absolute Maximum Ratings (T<sub>A</sub>=25°C unless otherwise noted)

Symbol	Parameter	Typical	Unit	
V <sub>DSS</sub>	Drain-Source Voltage	70	V	
V <sub>GSS</sub>	Gate -Source Voltage	±25	V	
I <sub>D</sub>	Continuous Drain Current	T <sub>C</sub> =100°C	76	A
			80	A
I <sub>DP</sub>	300us Pulsed Drain Current Tested	300	A	
I <sub>S</sub>	Diode Continuous Forward Current	80	A	
T <sub>J</sub>	Operating Junction Temperature	175	°C	
T <sub>STG</sub>	Storage Temperature Range	-55 ~ 175	°C	

## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ	Max.	Unit
<b>Static Characteristics</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	68			V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =-24V, V <sub>GS</sub> =0V T <sub>J</sub> =85°C			1	uA
					30	
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	2	3	4	V
I <sub>GSS</sub>	Gate Leakage Current	V <sub>GS</sub> =±25V, V <sub>DS</sub> =0V			±100	nA
R <sub>DS(on)</sub> <sup>1</sup>	Drain-Source On-Resistance	V <sub>GS</sub> =10V, I <sub>D</sub> =40A		6.5	8	mΩ
<b>Diode Characteristics</b>						
V <sub>SD</sub> <sup>1</sup>	Diode Forward Voltage	I <sub>SD</sub> =20A, V <sub>GS</sub> =0V		0.8	1.3	V
t <sub>rr</sub>	Reverse Recovery Time	I <sub>SD</sub> =40A, dI <sub>SD</sub> /dt=100A/us		50		ns
Q <sub>rr</sub>	Reverse Recovery Charge			90		nC
<b>Dynamic Characteristics<sup>2</sup></b>						
R <sub>G</sub>	Gate Resistance	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, Frequency=1MHz		1.3		Ω
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> =0V, V <sub>DS</sub> =30V Frequency=1MHz		3000	4200	pF
C <sub>oss</sub>	Output Capacitance			430		
C <sub>rss</sub>	Reverse Transfer Capacitance			250		
t <sub>d(on)</sub>	Turn-On Delay Time	V <sub>DD</sub> =30V, R <sub>L</sub> =30Ω I <sub>D</sub> =1.0A, V <sub>GEN</sub> =10V R <sub>G</sub> =6Ω		17	30	ns
t <sub>r</sub>	Turn-On Rise Time			15	27	
t <sub>d(off)</sub>	Turn-Off Delay Time			62	110	
t <sub>f</sub>	Turn-Off Fall Time			32	58	
<b>Gate Charge Characteristics<sup>2</sup></b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =30V, V <sub>GS</sub> =10V I <sub>D</sub> =40A		76	106	nC
Q <sub>gs</sub>	Gate-Source Charge			14		
Q <sub>gd</sub>	Gate-Drain Charge			25		

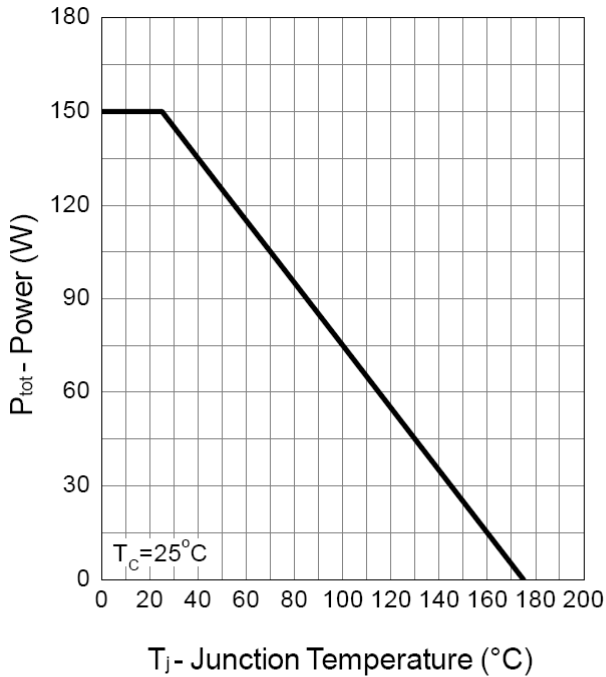
Note:

- 1: Pulse test ; pulse width ≤ 300ns, duty cycle ≤ 2%.
- 2: Guaranteed by design, not subject to production testing.

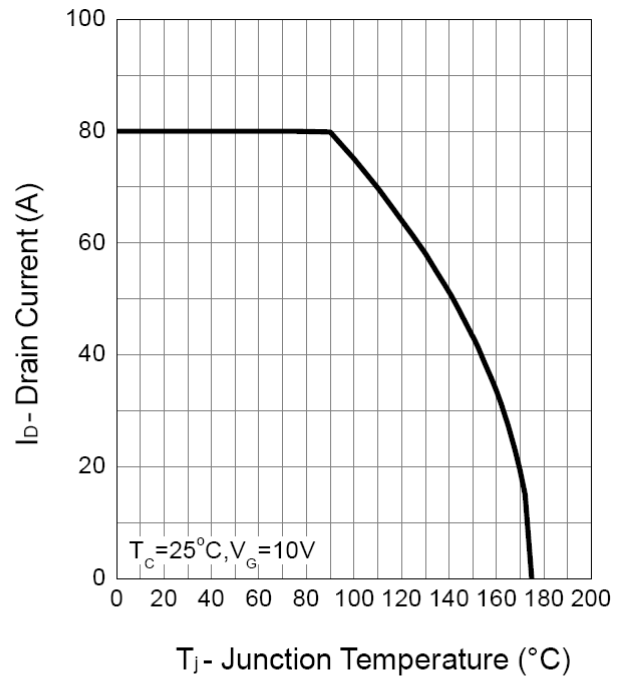
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**Typical Characteristics**

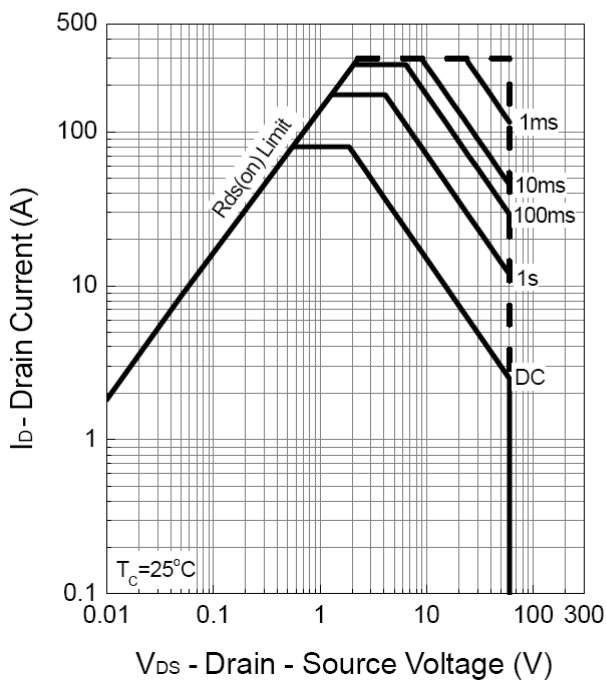
**Power Dissipation**



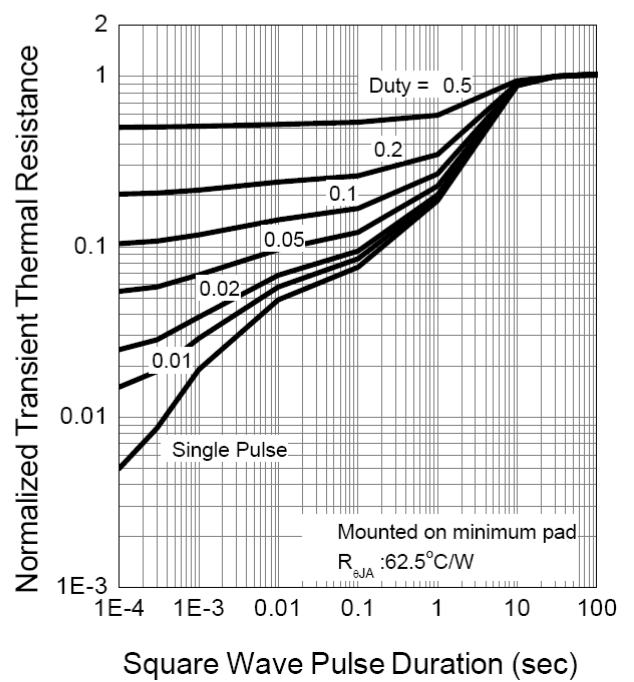
**Drain Current**



**Safe Operation Area**



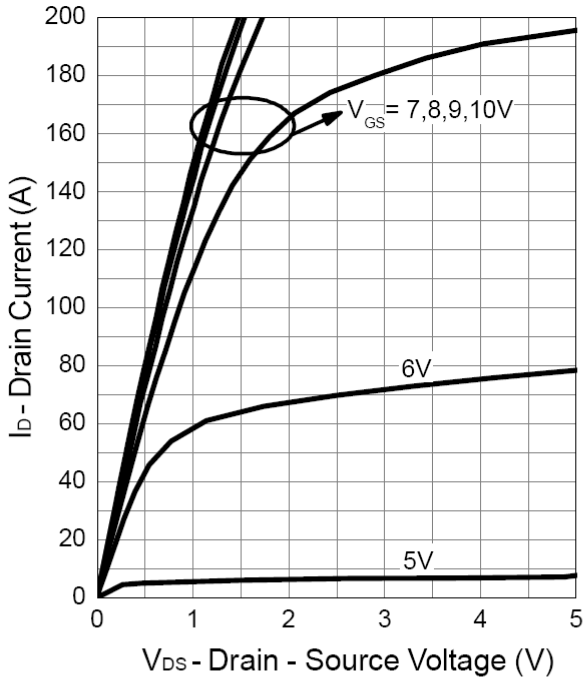
**Thermal Transient Impedance**



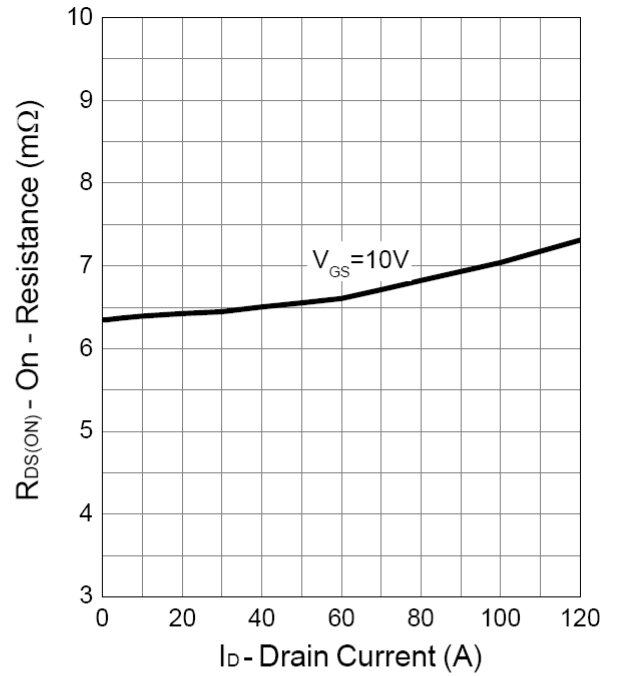
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**Typical Characteristics (Cont.)**

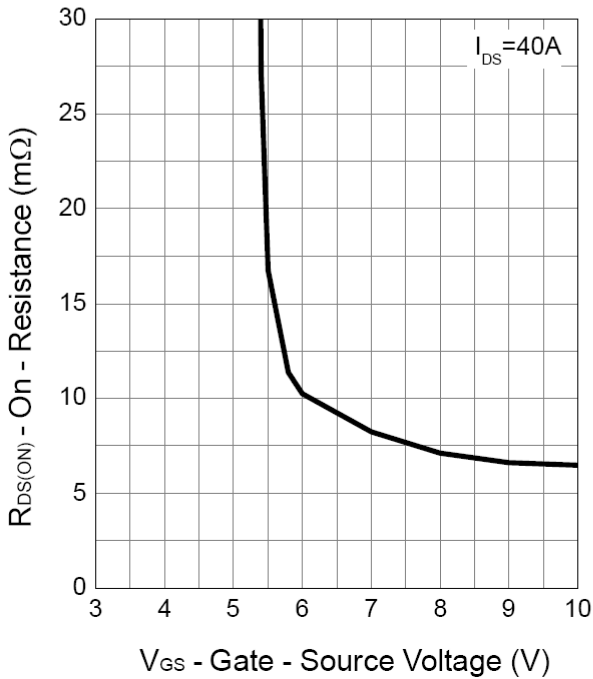
**Output Characteristics**



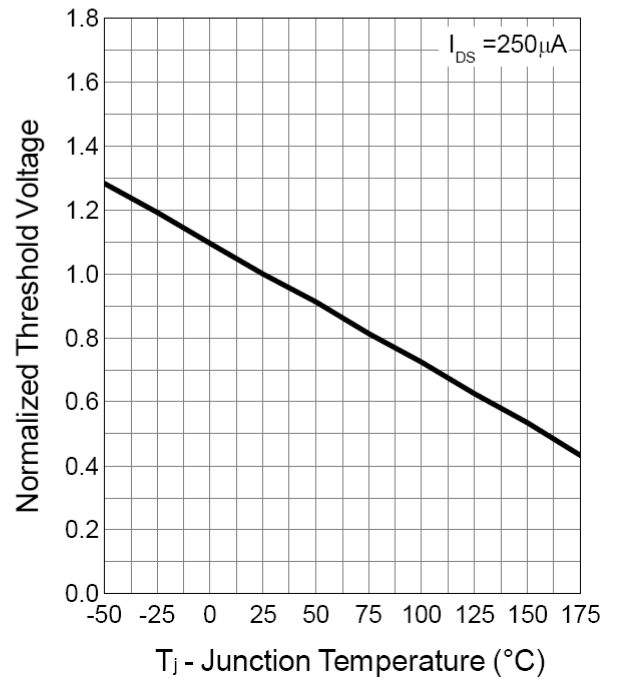
**Drain-Source On Resistance**



**Gate-Source On Resistance**



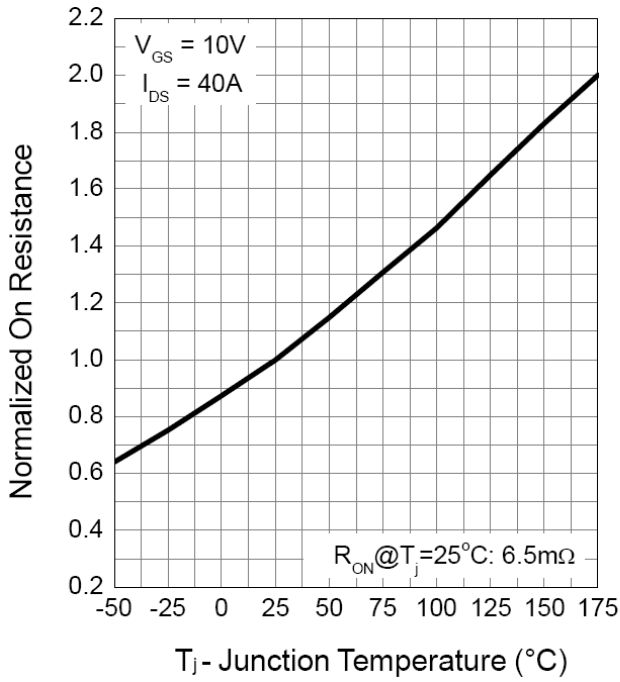
**Gate Threshold Voltage**



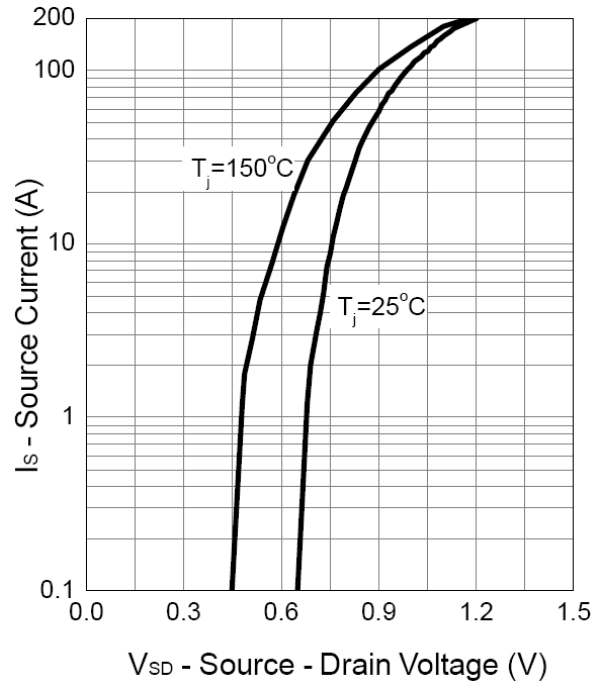
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**Typical Characteristics (Cont.)**

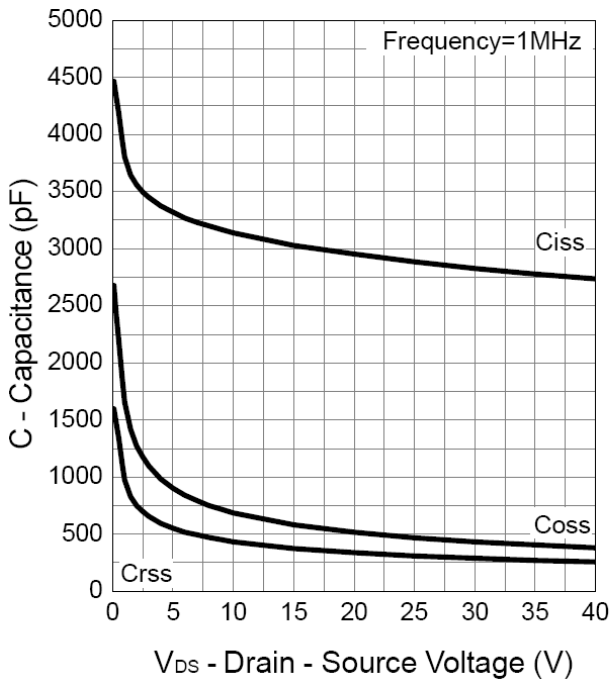
**Drain-Source On Resistance**



**Source-Drain Diode Forward**



**Capacitance**



**Gate Charge**

