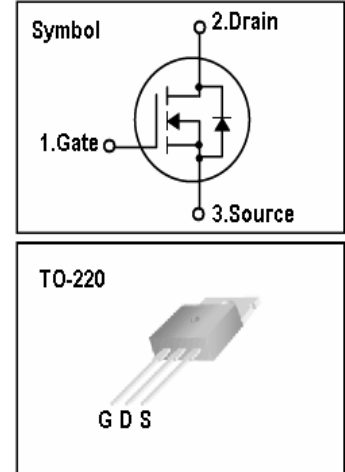




## N-Channel MOSFET

### Features

- 70V,200A,Rds(on)(typ)=3.5mΩ @Vgs=10V
- High Ruggedness
- Fast Switching
- 100% Avalanche Tested
- Improved dv/dt Capability



### General Description

This Power MOSFET is produced using DeXin's advanced Trench MOS Technology. This latest technology has been especially designed to minimize on-state resistance, have a high rugged avalanche characteristics. These devices are well suited for low voltage application such as automotive,DC/DC converters,and high efficiency switch for power management in portable and battery products.

### Absolute Maximum Ratings

Symbol	Parameter	Value	Units
V <sub>DSS</sub>	Drain-Source Voltage	70	V
I <sub>D</sub>	Continuous Drain Current (T <sub>C</sub> =25 °C)	200	A
	Continuous Drain Current (T <sub>C</sub> =100°C)	140	A
I <sub>DM</sub>	Pulsed Drain Current (Note 1)	800	A
V <sub>GS</sub>	Gate-Source Voltage	±25	V
E <sub>AS</sub>	Single Pulsed Avalanche Energy (Note 2)	1000	mJ
P <sub>D</sub>	Maximum Power Dissipation (T <sub>C</sub> =25 °C)	400	W
	Derating Factor above 25°C	2.0	W/°C
T <sub>J</sub>	Operating Junction Temperature Range	-55 to +175	°C
T <sub>STG</sub>	Storage Temperature Range	-55 to +175	°C

### Thermal Characteristics

Symbol	Parameter	Max.	Units
R <sub>th j-c</sub>	Thermal Resistance, Junction to case	0.5	°C / W
R <sub>th c-s</sub>	Thermal Resistance, Case to Sink	0.5	°C / W
R <sub>th j-a</sub>	Thermal Resistance, Junction to Ambient	62.5	°C / W



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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	70	-	-	V
I <sub>DSS</sub>	Drain-Source Leakage Current	V <sub>DS</sub> =70V, V <sub>GS</sub> =0V	-	-	250	uA
I <sub>GSS</sub>	Gate Leakage Current, Forward	V <sub>GS</sub> =25V, V <sub>DS</sub> =0V	-	-	100	nA
	Gate Leakage Current, Reverse	V <sub>GS</sub> =-25V, V <sub>DS</sub> =0V	-	-	-100	nA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250uA	2	-	4	V
R <sub>DS(on)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =10V, I <sub>D</sub> =80A	-	3.5	4.0	mΩ
Q <sub>g</sub>	Total Gate Charge	V <sub>DD</sub> =60V	-	212	-	nC
Q <sub>gs</sub>	Gate-Source Charge	V <sub>GS</sub> =10V	-	51	-	nC
Q <sub>gd</sub>	Gate-Drain Charge	I <sub>D</sub> =80A (Note 3)	-	90	-	nC
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DD</sub> =60V, V <sub>GS</sub> =10V	-	28	-	ns
t <sub>r</sub>	Turn-on Rise Time	I <sub>D</sub> =90A, R <sub>G</sub> =2.2Ω	-	40	-	ns
t <sub>d(off)</sub>	Turn-off Delay Time	T <sub>C</sub> =25℃	-	38	-	ns
t <sub>f</sub>	Turn-off Fall Time	(Note 3)	-	28	-	ns
C <sub>iss</sub>	Input Capacitance -	V <sub>DS</sub> =25V	-	7400	-	pF
C <sub>oss</sub>	Output Capacitance	V <sub>GS</sub> =0V	-	940	-	pF
C <sub>rss</sub>	Reverse Transfer Capacitance	f = 1MHz	-	480	-	pF

### Source-Drain Diode Characteristics (T<sub>C</sub>=25℃ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
I <sub>S</sub>	Continuous Source Diode Forward Current		-	-	200	A
I <sub>SM</sub>	Pulsed Source Diode Forward Current (Note 1)		-	-	400	A
V <sub>SD</sub>	Forward On Voltage	V <sub>GS</sub> =0V, I <sub>S</sub> =90A	-	-	1.5	V
t <sub>rr</sub>	Reverse Recovery Time	V <sub>GS</sub> =0V, I <sub>S</sub> =90A	-	120	160	ns
Q <sub>rr</sub>	Reverse Recovery Charge	dI <sub>F</sub> /dt = 100A/us	-	420	630	nC

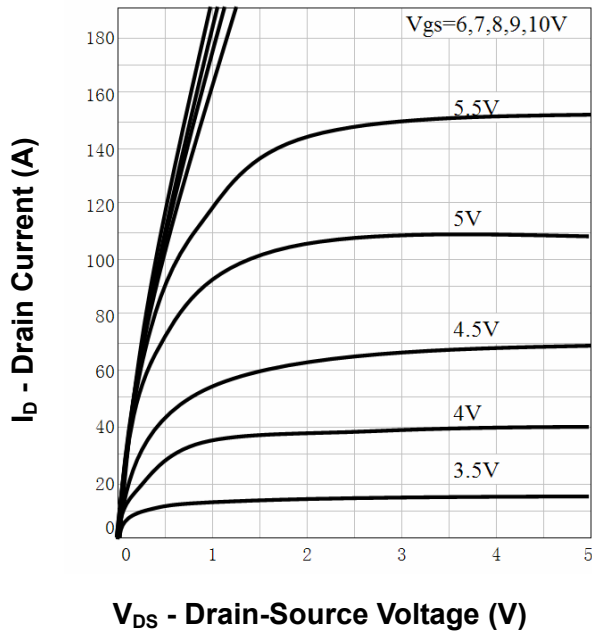
Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. L=0.28mH, I<sub>AS</sub>=50A, V<sub>DD</sub>=45V, R<sub>G</sub>=25Ω, Starting T<sub>J</sub>=25℃
3. Pulse Width ≤ 300 us; Duty Cycle≤2%

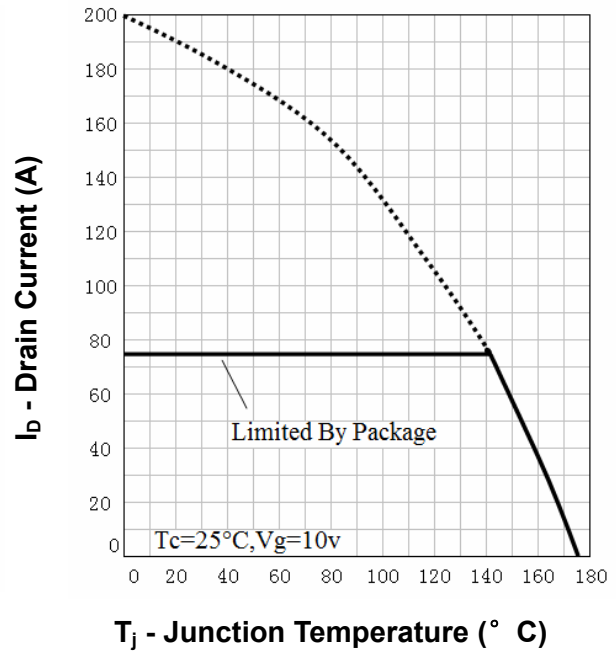


## Typical Characteristics

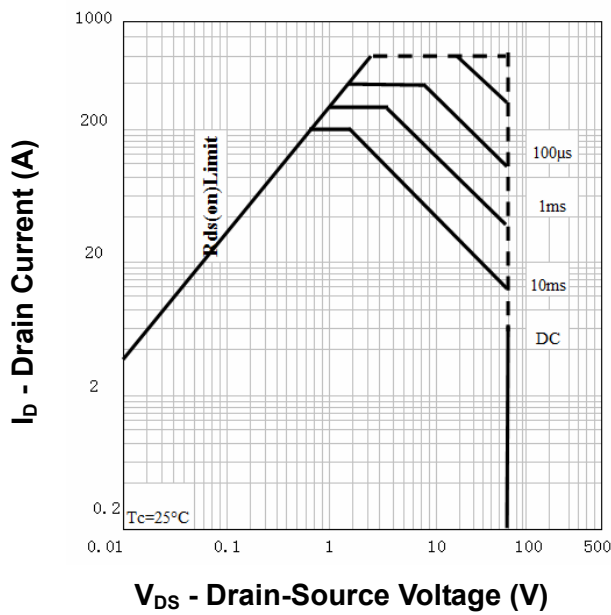
### Output Characteristics



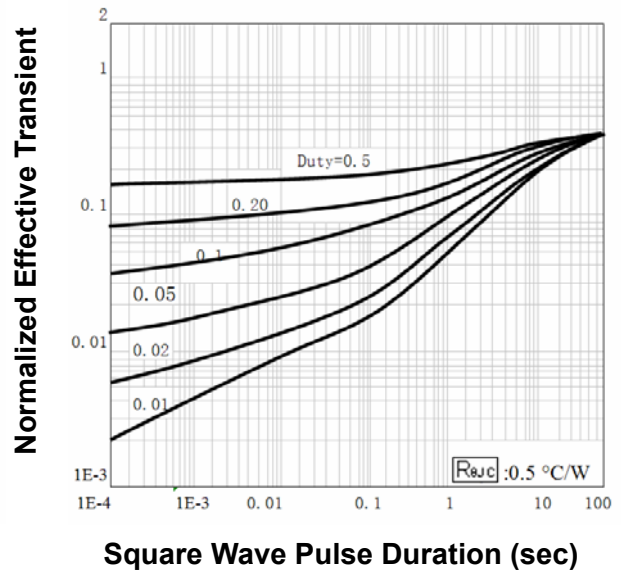
### Drain Current



### Safe Operation Area



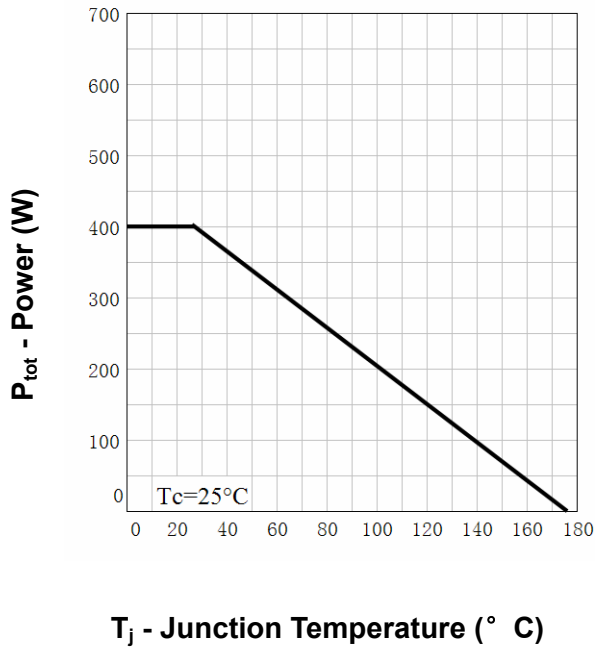
### Thermal Transient Impedance



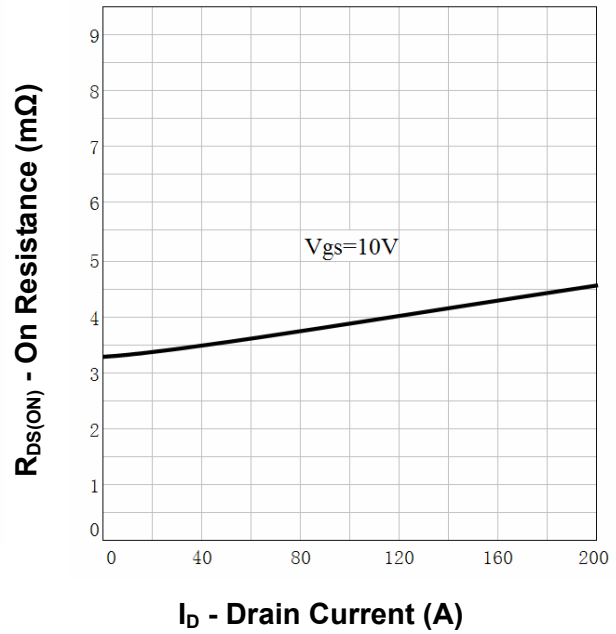


## Typical Characteristics

### Power Dissipation



### Drain-Source On Resistance

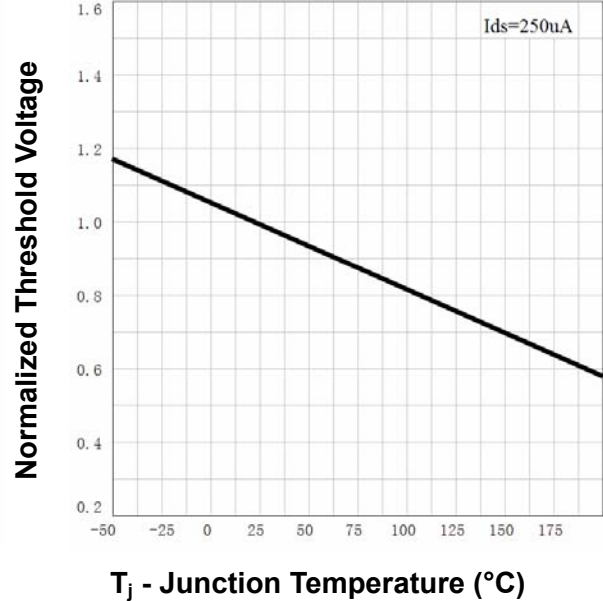
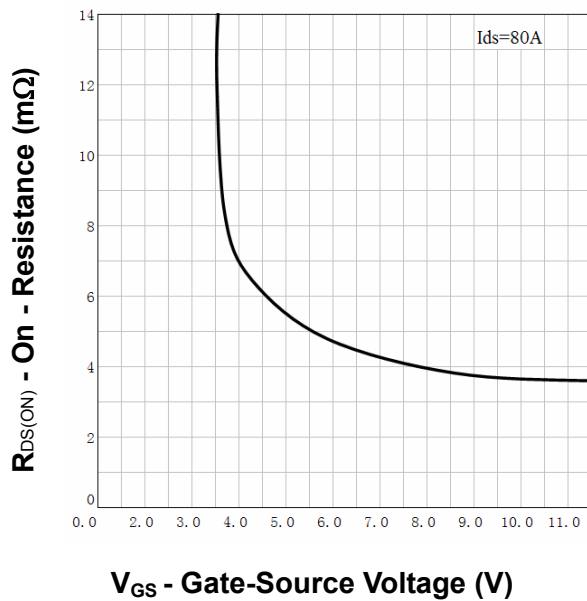


### $T_j$ - Junction Temperature (° C)

### $I_D$ - Drain Current (A)

### Drain-Source On Resistance

### Gate Threshold Voltage

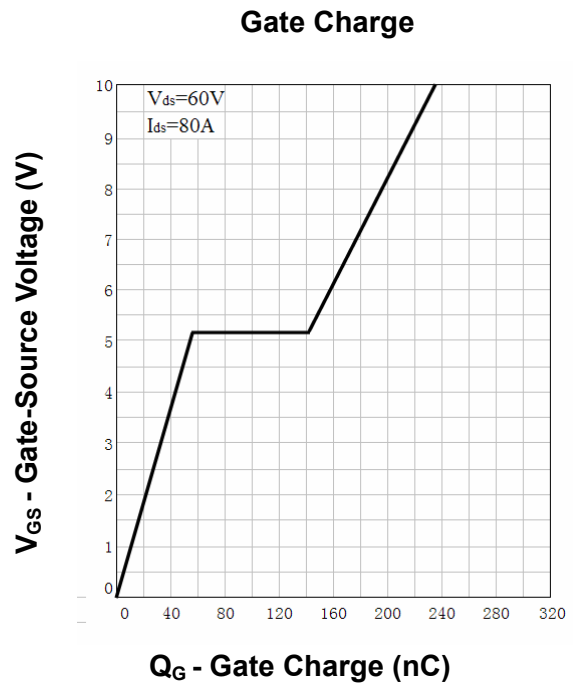
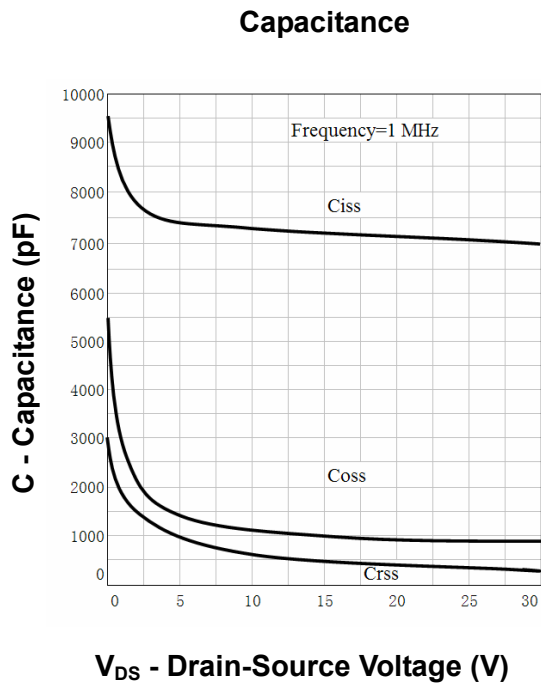
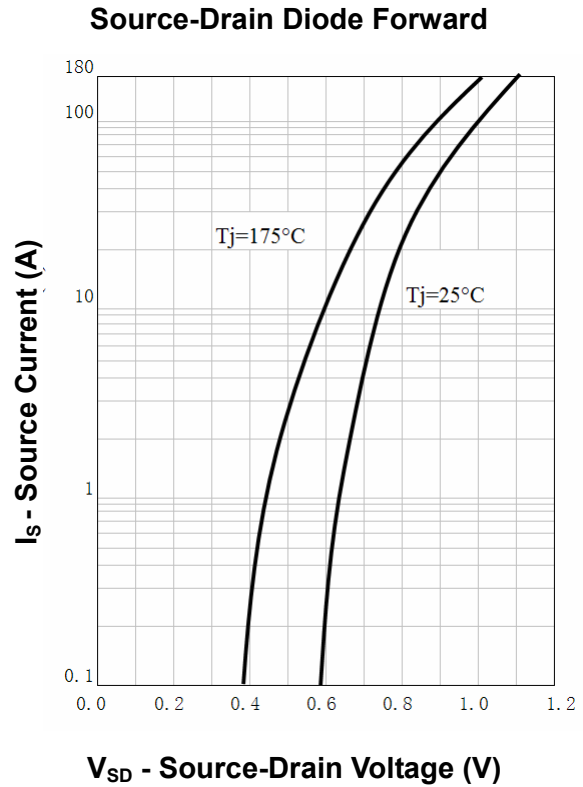
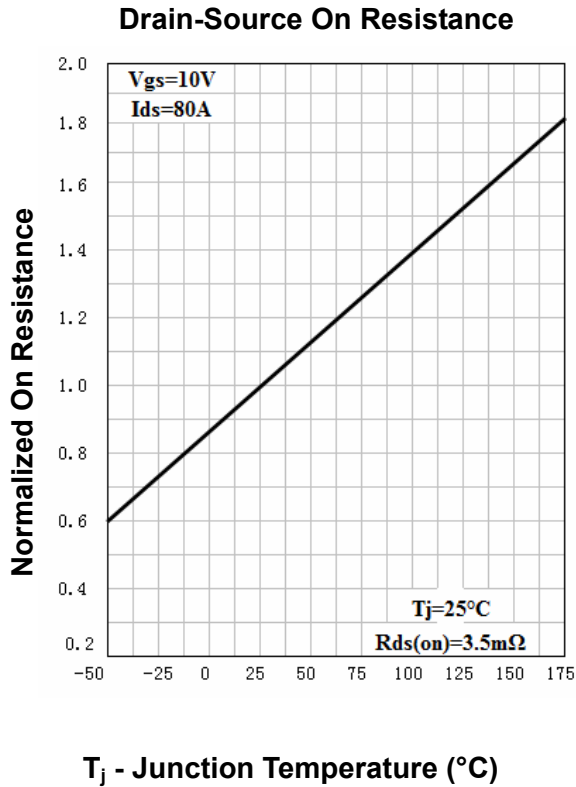


### $V_{GS}$ - Gate-Source Voltage (V)

### $T_j$ - Junction Temperature (°C)

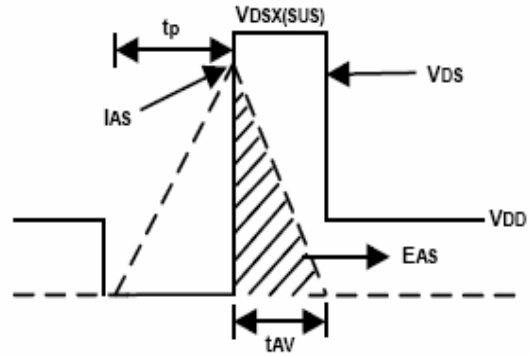
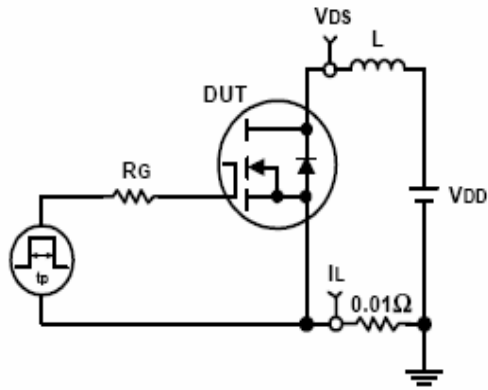


## Typical Characteristics





### Avalanche Test Circuit and Waveforms



### Switching Time Test Circuit and Waveforms

