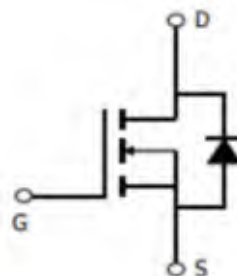
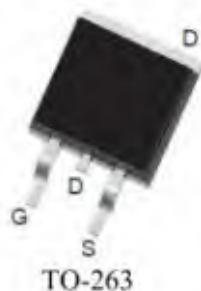


**Features**

- 75V/110A
 $R_{DS(ON)} = 5.5m\Omega(Typ.) @ V_{GS} = 10V$
- Super High Dense Cell Design
- Ultra Low On-Resistance
- 100% avalanche tested
- Lead Free and Green Devices Available
- (RoHS Compliant)

Applications

- DC-DC Converters and Off-line UPS

**Absolute Maximum Ratings**

Symbol	Parameter		Rating	Unit
Common Ratings (T _C =25°C Unless Otherwise Noted)				
V _{DSS}	Drain-Source Voltage		75	V
V _{GSS}	Gate-Source Voltage		±25	
T _J	Maximum Junction Temperature		175	°C
T _{STG}	Storage Temperature Range		-55 to 175	°C
I _S	Diode Continuous Forward Current	T _C =25°C	110 ^①	A
Mounted on Large Heat Sink				
I _{DP}	300μs Pulse Drain Current Tested	T _C =25°C	440 ^②	A
I _D	Continuous Drain Current(V _{GS} =10V)	T _C =25°C	110 ^①	A
		T _C =100°C	82 ^①	
P _D	Maximum Power Dissipation	T _C =25°C	188	W
		T _C =100°C	94	W
R _{θJC}	Thermal Resistance-Junction to Case		0.8	°C/W
Drain-Source Avalanche Ratings				
E _{AS} ^③	Avalanche Energy, Single Pulsed		400	mJ

**Electrical Characteristics** ($T_C=25^{\circ}\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	75			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 75V, V _{GS} =0V T _J =85°C			1 30	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	2	3	4	V
I _{GSS}	Gate Leakage Current	V _{GS} =±25V, V _{DS} =0V			±100	nA
R _{DS(ON)} ^④	Drain-Source On-state Resistance	V _{GS} = 10V, I _{DS} =55A		5.5	7	mΩ
Diode Characteristics						
V _{SD} ^④	Diode Forward Voltage	I _{SD} =55A, V _{GS} =0V			1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} =55A, dI _{SD} /dt=100A/μs		32		ns
Q _{rr}	Reverse Recovery Charge			44		nC
Dynamic Characteristics ^⑤						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz		1.2		Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =37.5V, Frequency=1.0MHz		4350		pF
C _{oss}	Output Capacitance			450		
C _{rss}	Reverse Transfer Capacitance			260		
t _{d(ON)}	Turn-on Delay Time	V _{DD} =37.5V, R _L =0.7Ω, I _{DS} =55A, V _{GEN} =10V, R _G =3.75Ω		22		ns
t _r	Turn-on Rise Time			46		
t _{d(OFF)}	Turn-off Delay Time			22		
t _f	Turn-off Fall Time			16		
Gate Charge Characteristics ^⑤						
Q _g	Total Gate Charge	V _{DS} =60V, V _{GS} =10V, I _{DS} =55A		45		nC
Q _{gs}	Gate-Source Charge			12		
Q _{gd}	Gate-Drain Charge			14		

Notes: ① Calculated continuous current based on maximum allowable junction temperature. Package limitation current is 75A.

② Pulse width limited by safe operating area.

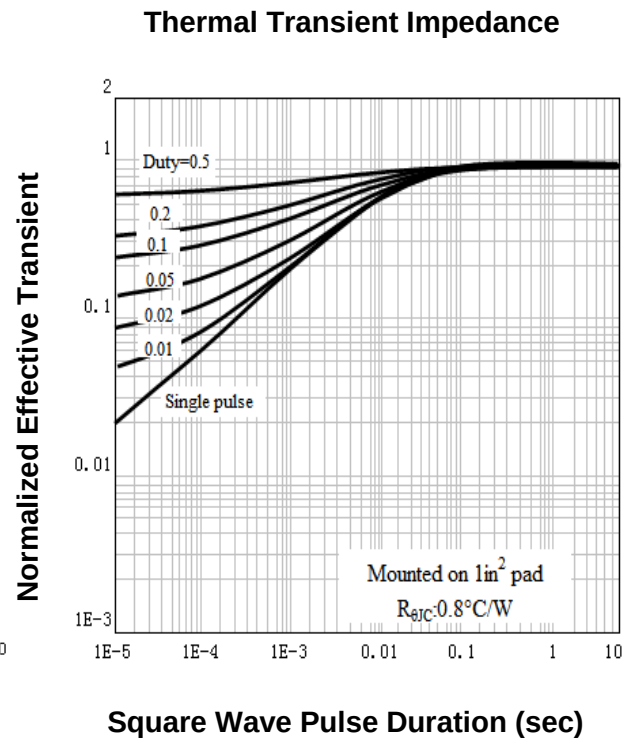
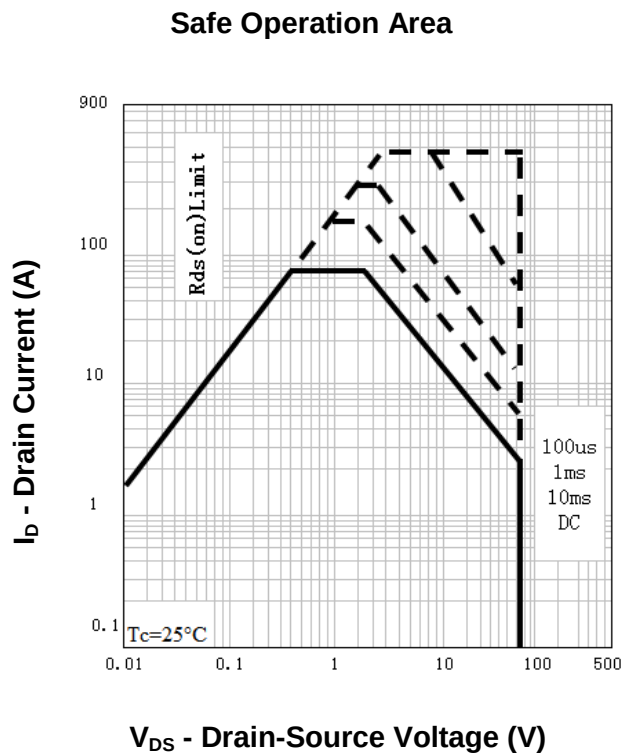
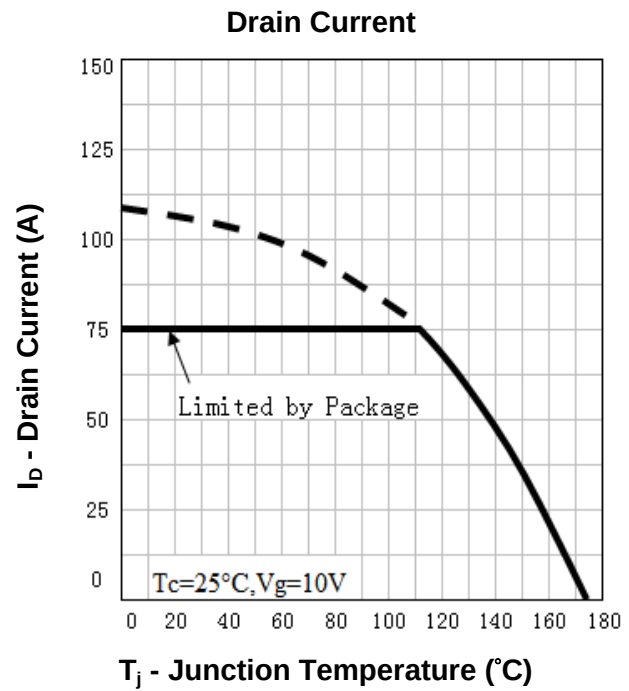
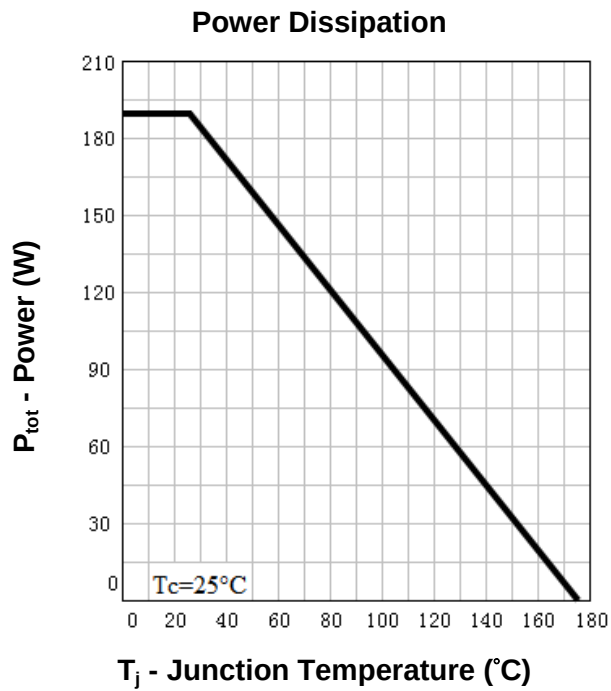
③ Limited by T_{Jmax} , $I_{AS}=40A$, $V_{DD}=48V$, $R_G=50\Omega$, Starting $T_J=25^{\circ}\text{C}$.

④ Pulse test; Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

⑤ Guaranteed by design, not subject to production testing.



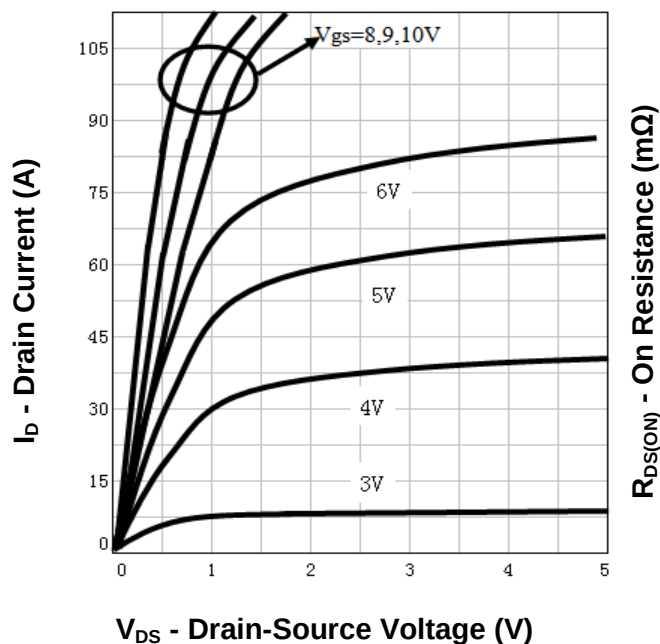
Typical Characteristics



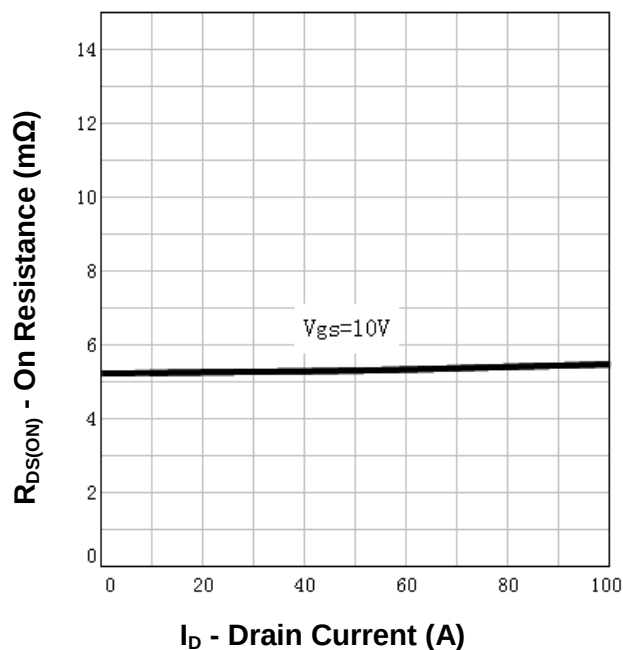


Typical Characteristics

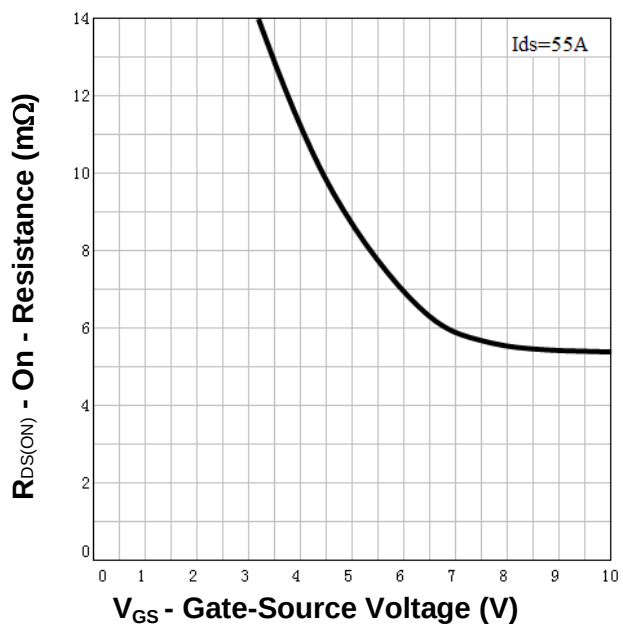
Output Characteristics



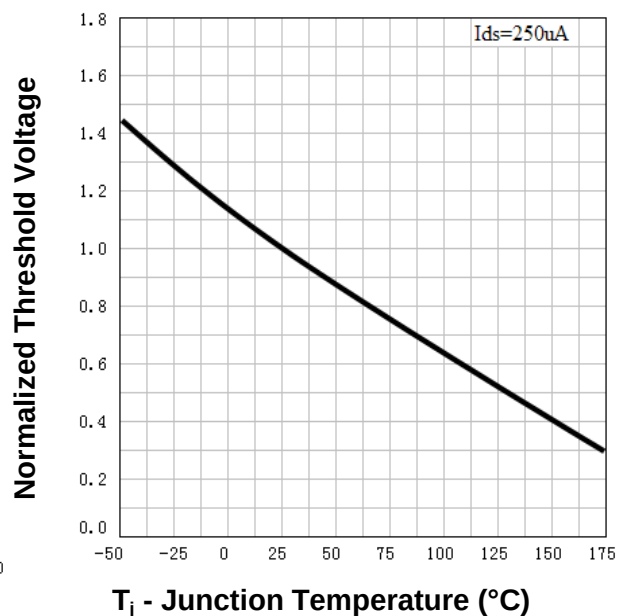
Drain-Source On Resistance



Drain-Source On Resistance



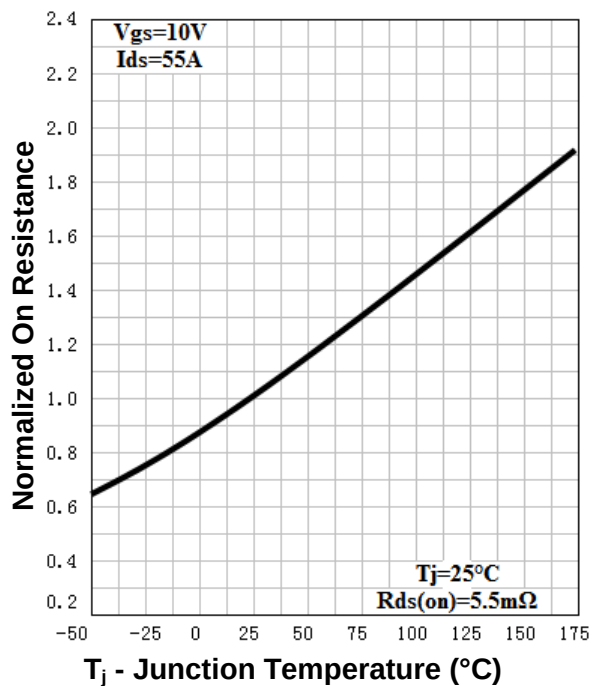
Gate Threshold Voltage



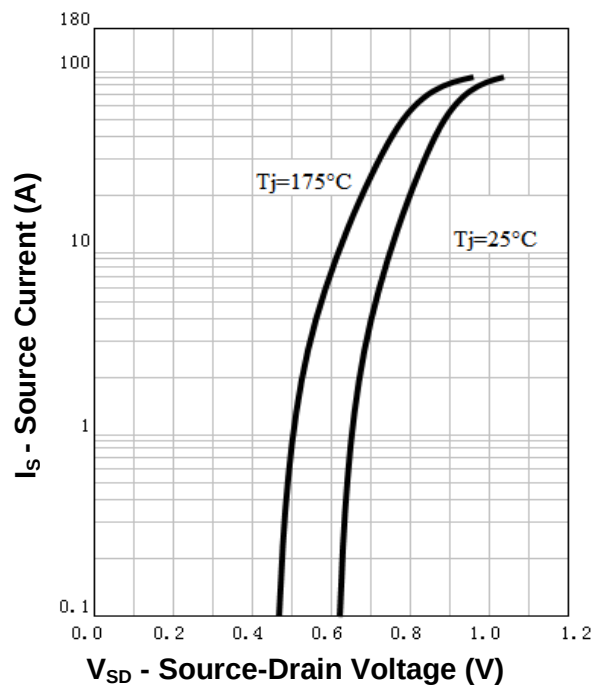


Typical Characteristics

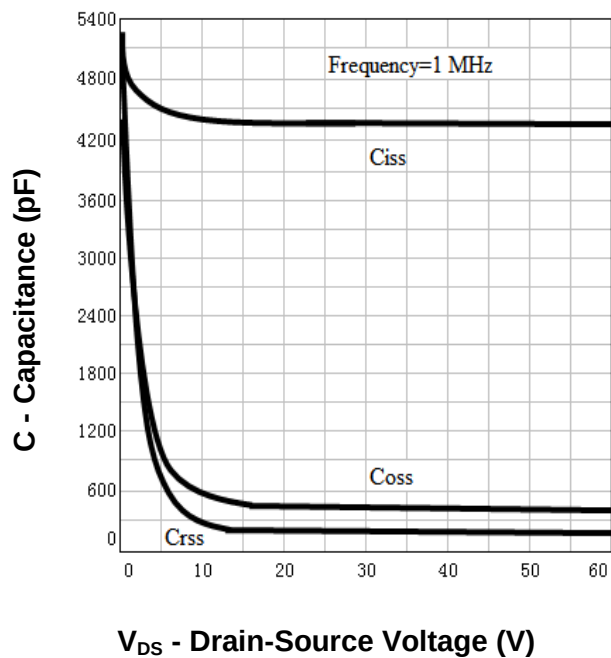
Drain-Source On Resistance



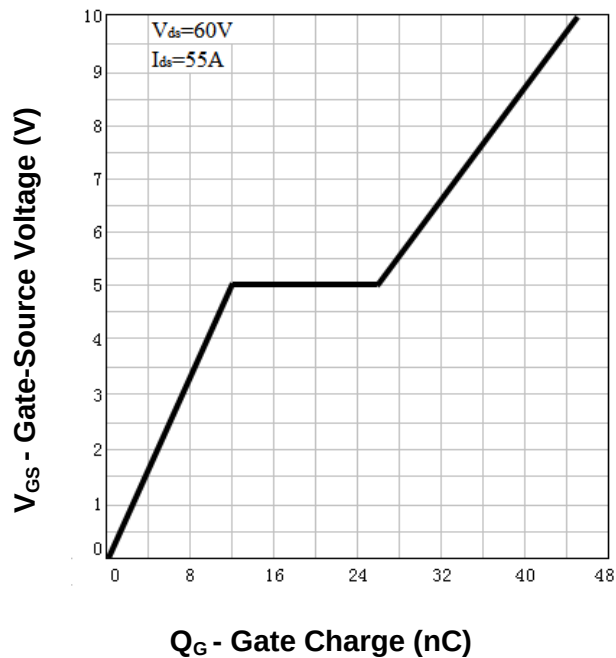
Source-Drain Diode Forward



Capacitance

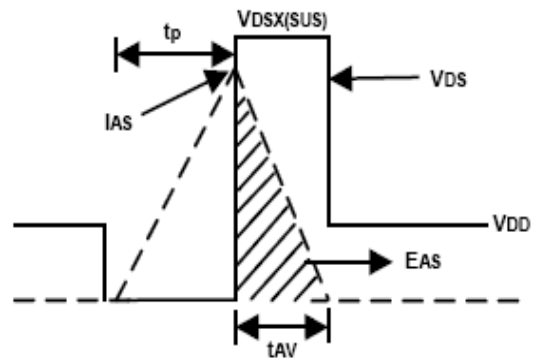
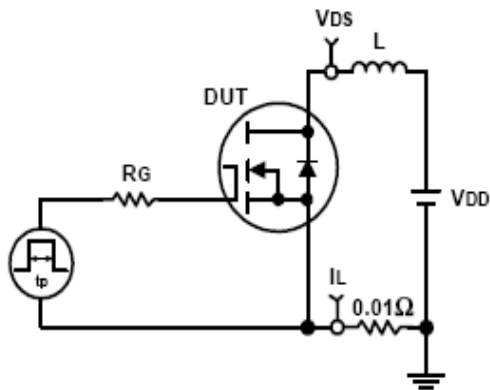


Gate Charge

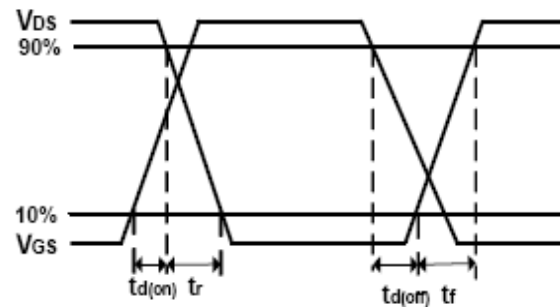
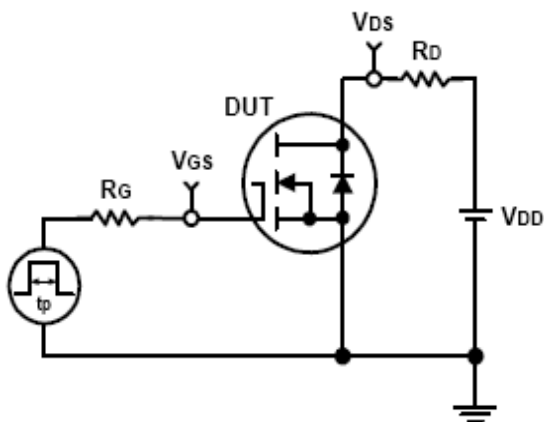




Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms





TO-263-2L

