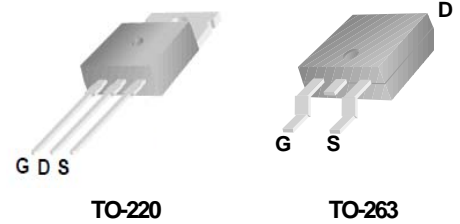
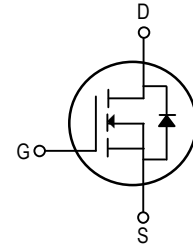


Features

- 65V/88A
RDS(ON)=7.0mΩ @ VGS=10V
- Lead free and Green Device Available
- Low Rds-on to Minimize Conductive Loss
- High avalanche Current
- 100% Avalanche Tested



Application

- Power Supply
- DC-DC Converters
- UPS
- Battery Management System

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Symbol	Parameter	Maximum	Unit
V _{DSS}	Drain-to-Source Voltage	65	V
V _{GSS}	Gate-to-Source Voltage	±25	V
I _D ³	Continuous Drain Current	T _C =25°C	88
		T _C =100°C	70
I _{DP} ⁴	Pulsed Drain Current	T _C =25°C	352
EAS ⁵	Avalanche energy	288	mJ
PD	Maximum Power Dissipation	T _C =25°C	174
T _J , T _{STG}	Junction & Storage Temperature Range	-55~175	°C

Thermal Characteristics

Symbol	Parameter	Typical	Unit
Rθ _{jc}	Thermal Resistance-Junction to Case	0.72	°C/W
Rθ _{ja}	Thermal Resistance-Junction to Ambient	62.5	

Electrical Characteristics (TA=25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	65	—	—	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=65V, V_{GS}=0V$	—	—	1	uA
		$T_J=125^\circ C$	—	—	100	
$V_{GS(th)}$	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	7.8	mΩ
			—	—	—	
Diode Characteristics						
V_{SD}^1	Diode Forward Voltage	$I_{SD}=40A, V_{GS}=0V$	—	—	1.3	V
I_S^3	Diode Continuous Forward Current		—	—	80	A
t_{rr}	Reverse Recovery Time	$I_F=40A,$ $dI/dt=100A/us$	—	50	—	nS
Q_{rr}	Reverse Recovery Charge		—	90	—	nC
Dynamic Characteristics²						
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=30V$ Frequency=1MHz	—	3000	—	pF
C_{oss}	Output Capacitance		—	430	—	
C_{rss}	Reverse Transfer Capacitance		—	250	—	
$t_{d(on)}$	Turn-On Delay Time	$V_{DD}=30V, I_D=40A,$ $V_{GS}=10V, R_G=6\Omega$	—	17	—	nS
t_r	Rise Time		—	15	—	
$t_{d(off)}$	Turn-Off Delay Time		—	62	—	
t_f	Fall Time		—	32	—	
Gate Charge Characteristics²						
Q_g	Total Gate Charge	$V_{DS}=30V, V_{GS}=10V$ $I_D=40A$	—	76	—	nC
Q_{gs}	Gate-to-Source Charge		—	14	—	
Q_{gd}	Gate-to-Drain Charge		—	25	—	

Note: 1: Pulse test; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

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

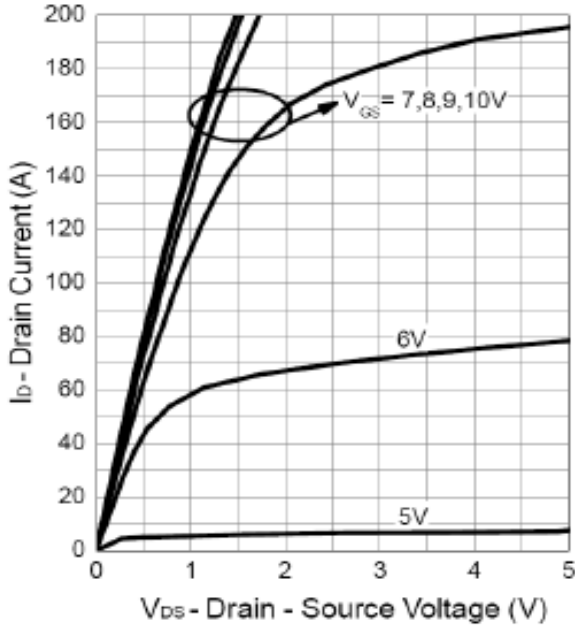
3: Package limitation current is 55A. Calculated continuous current based on maximum allowable junction temperature.

4: Repetitive rating, pulse width limited by max junction temperature.

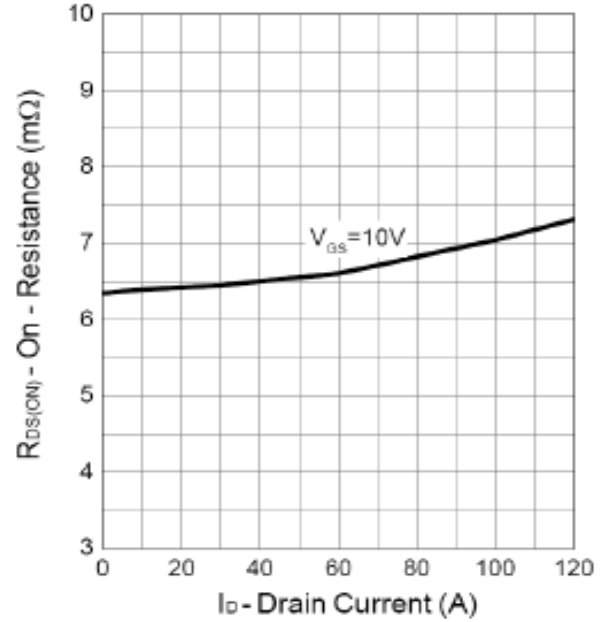
5: Starting $T_J = 25^\circ C, L = 1mH, I_{AS} = 24A$.

Typical Operating Characteristics

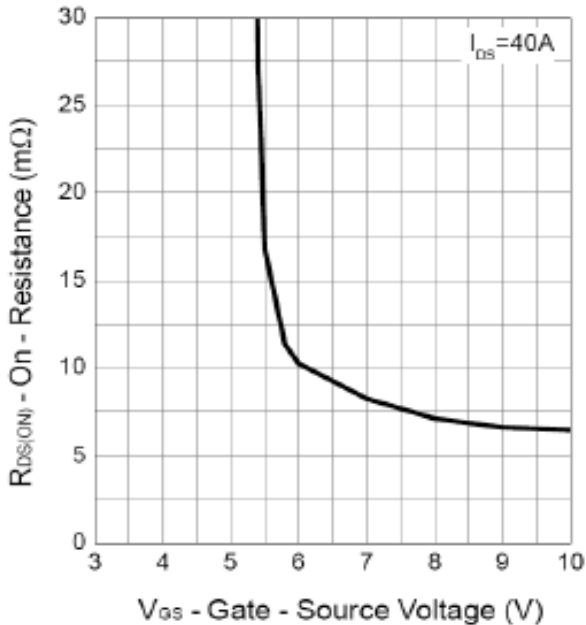
Output Characteristics



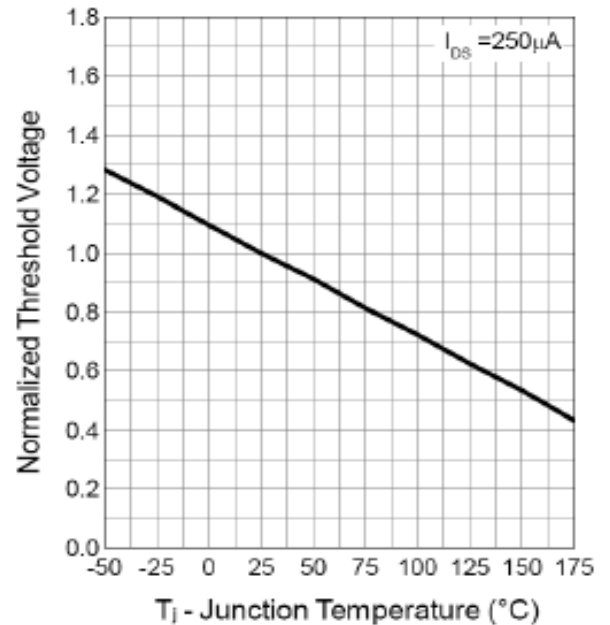
Drain-Source On Resistance



Gate-Source On Resistance

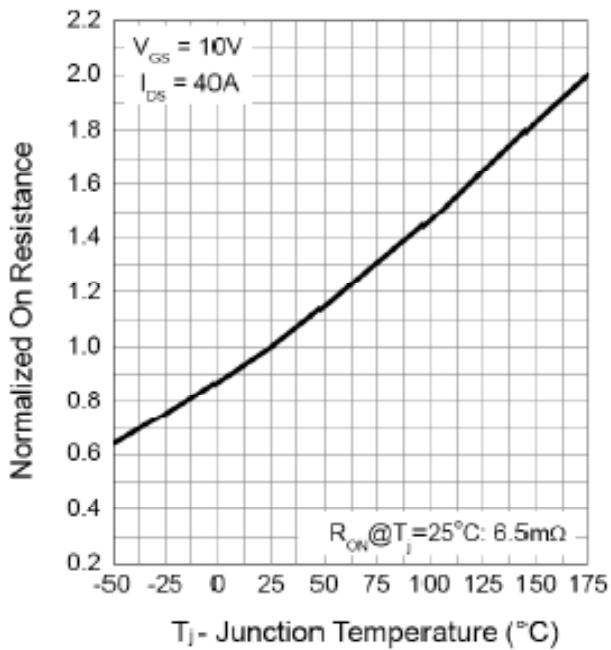


Gate Threshold Voltage

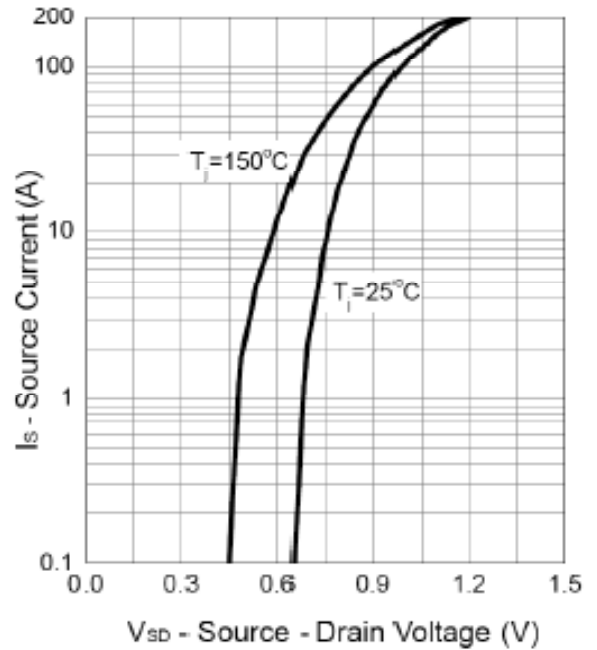


Typical Operating Characteristics

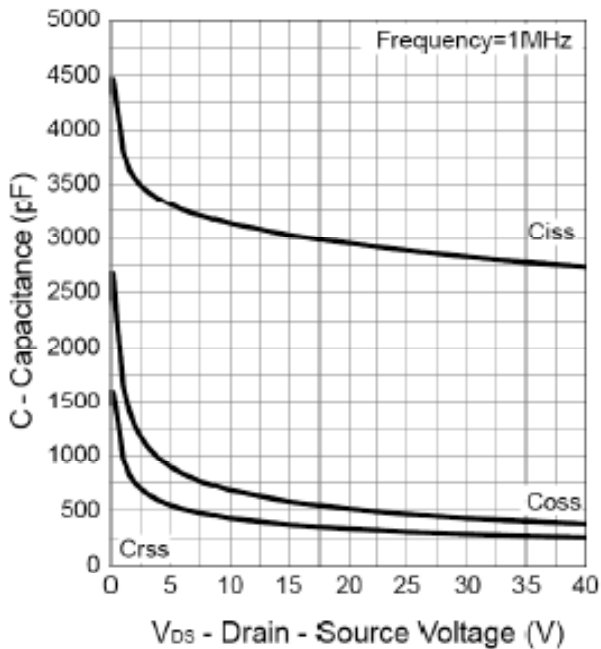
Drain-Source On Resistance



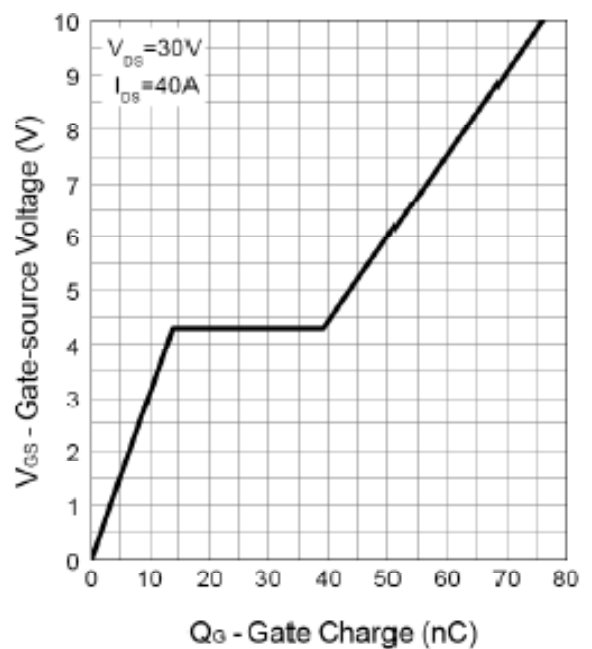
Source-Drain Diode Forward



Capacitance

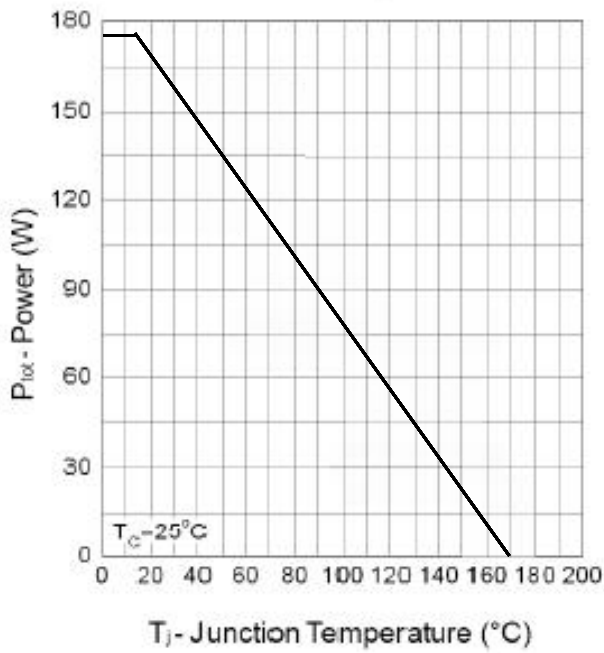


Gate Charge

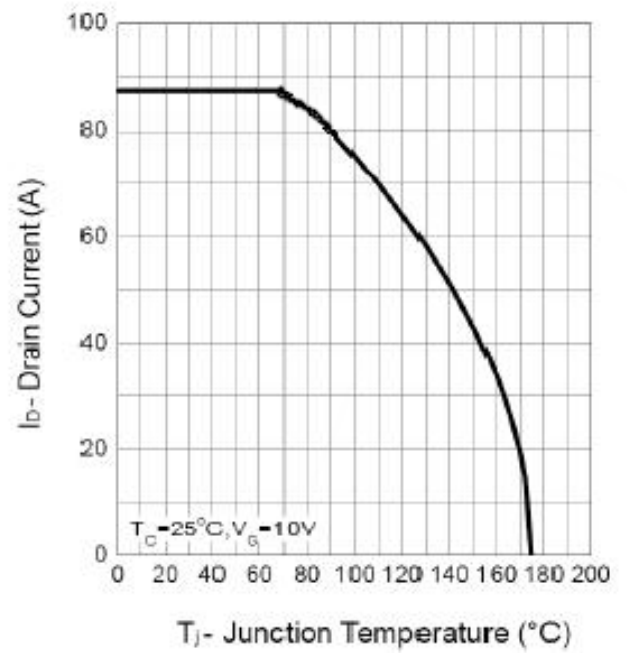


Typical Operating Characteristics

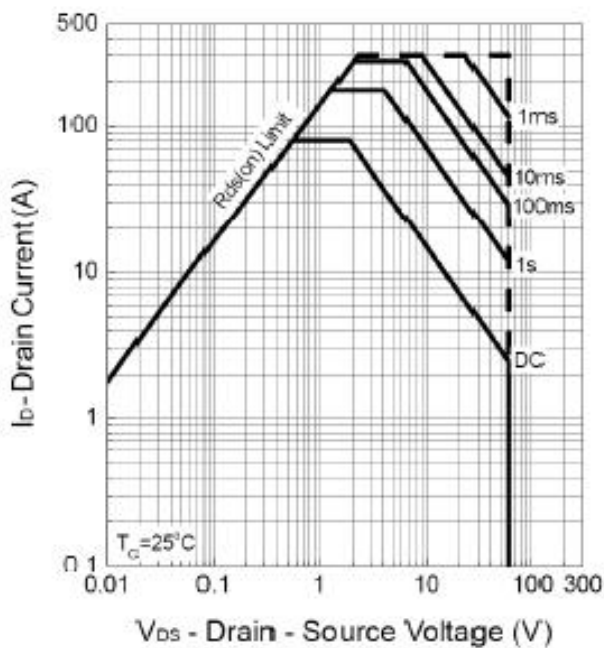
Power Dissipation



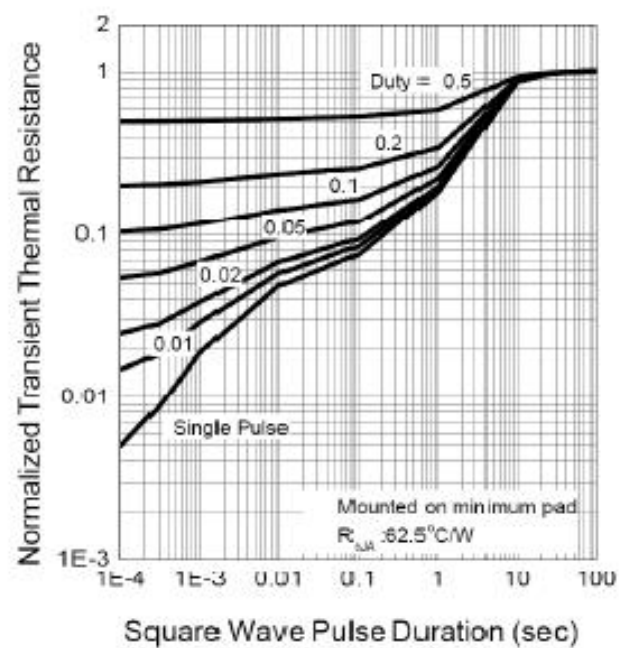
Drain Current



Safe Operation Area

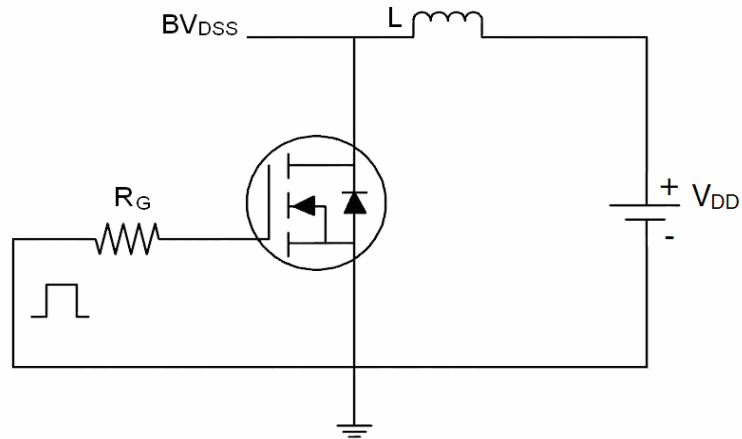


Thermal Transient Impedance

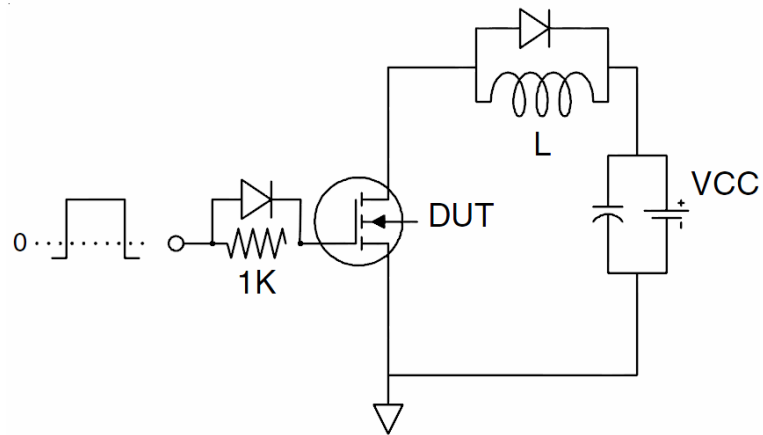


Test Circuit

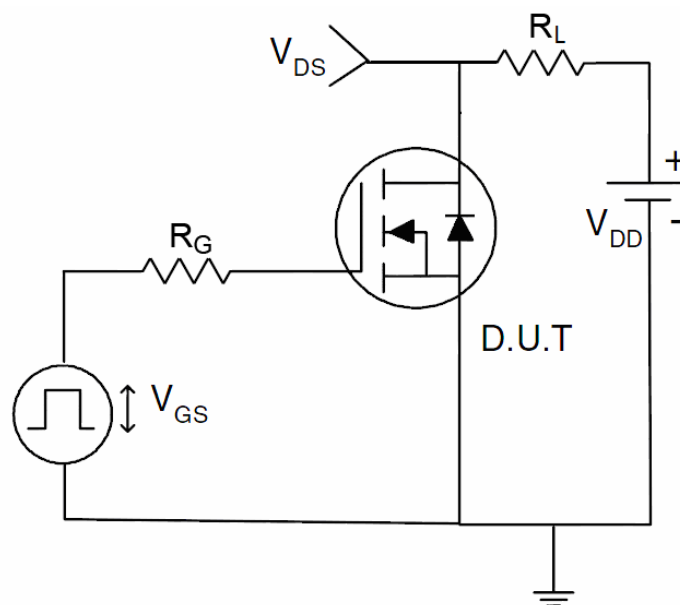
1) E_{AS} test Circuit



2) Gate charge test Circuit



3) Switch Time Test Circuit



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