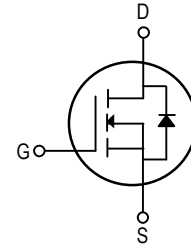


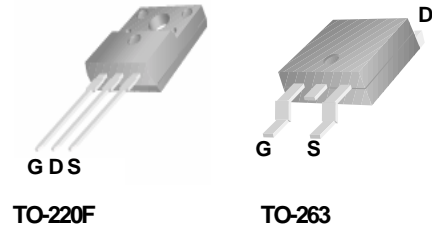
**Features**

- 80V/100A  
RDS(ON)=6.5mΩ (typ.)@ 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 Manageme



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

Symbol	Parameter	Maximum	Unit
V <sub>DSS</sub>	Drain-to-Source Voltag	80	V
V <sub>GSS</sub>	Gate-to-Source	±25	V
I <sub>D</sub> <sup>3</sup>	Continuous Drain Current	T <sub>C</sub> =25°C	100
		T <sub>C</sub> =100°C	70
I <sub>DM</sub> <sup>4</sup>	Pulsed Drain Current	400	A
EAS <sup>5</sup>	Avalanche energy	313	mJ
PD	Maximum Power Dissipation	T <sub>C</sub> =25°C	200
T <sub>J</sub> , T <sub>STG</sub>	Junction & Storage Temperature Range		-55~175
			°C

**Thermal Characteristics**

Symbol	Parameter	Typical	Unit
Rθjc	Thermal Resistance-Junction to Case	0.63	°C/W
Rθja	Thermal Resistance-Junction to Ambient	62.5	

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

Symbol	Parameter	Test Conditions	Min.	Typ	Max.	Unit
<b>Static Characteristics</b>						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	80	—	—	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=80V, V_{GS}=0V$	—	—	1	$\mu A$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	2	3	4	V
$I_{GSS}$	Gate Leakage Current	$V_{GS}=\pm 25V, V_{DS}=0V$	—	—	$\pm 100$	nA
$R_{DS(on)}^1$	Drain-Source On-Resistance	$V_{GS}=10V, I_D=50A$	—	6.5	8.5	m $\Omega$
			—	—	—	
<b>Diode Characteristics</b>						
$V_{SD}^1$	Diode Forward Voltage	$I_{SD}=50A, V_{GS}=0V$	—	0.9	1.3	V
$I_S^3$	Diode Continuous Forward Current		—	—	97	A
$t_{rr}$	Reverse Recovery Time	$I_S=50A,$	—	45	—	nS
$Q_{rr}$	Reverse Recovery Charge	$di/dt=100A/\mu s$	—	65	—	nC
<b>Dynamic Characteristics<sup>2</sup></b>						
$C_{iss}$	Input Capacitance	$V_{GS}=0V, V_{DS}=50V$ Frequency=1MHz	—	3175	—	pF
$C_{oss}$	Output Capacitance		—	440	—	
$C_{riss}$	Reverse Transfer Capacitance		—	268	—	
$t_{d(on)}$	Turn-On Delay Time	$V_{DS}=40V, I_D=50A,$ $V_{GS}=10V, (Note 1, 4)$	—	49	—	nS
$t_r$	Rise Time		—	64	—	
$t_{d(off)}$	Turn-Off Delay Time		—	139	—	
$t_f$	Fall Time		—	48	—	
<b>Gate Charge Characteristics<sup>2</sup></b>						
$Q_g$	Total Gate Charge	$V_{DS}=64V, I_D=50A,$ $V_{GS}=10V, (Note 1, 4)$	—	76	—	nC
$Q_{gs}$	Gate-to-Source Charge		—	21	—	
$Q_{gd}$	Gate-to-Drain Charge		—	24	—	

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

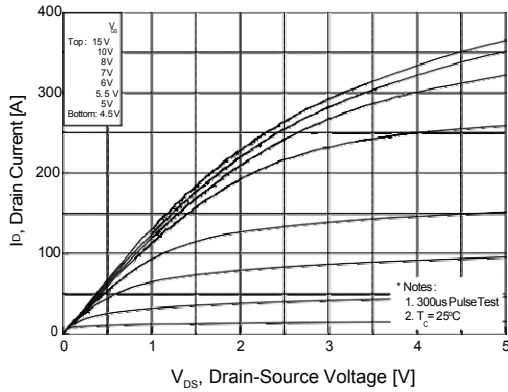
2: Guaranteed by design, not subject to production testing.

3: Package limitation current is 100A. Calculated continuous current based on maximum allowable junction temperature.

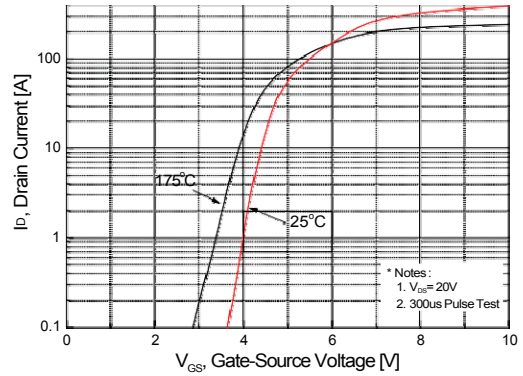
4: Repetitive rating, pulse width limited by max junction temperature.

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

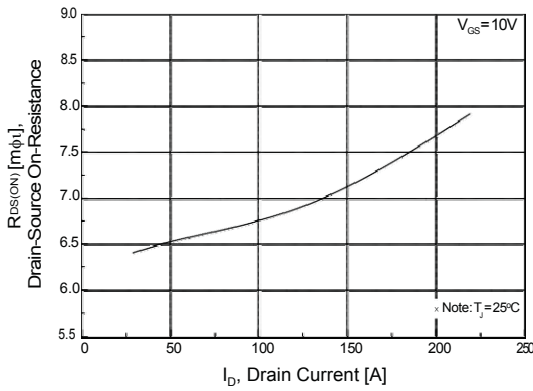
**Typical Characteristics**



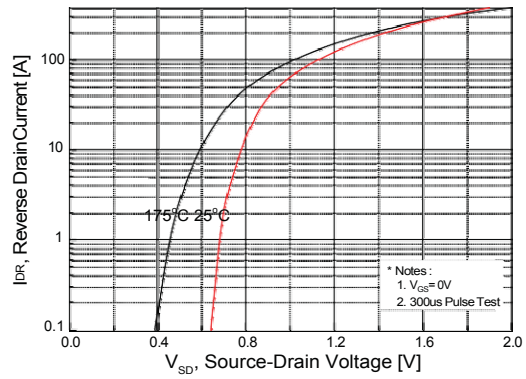
**Figure 1. On Region Characteristics**



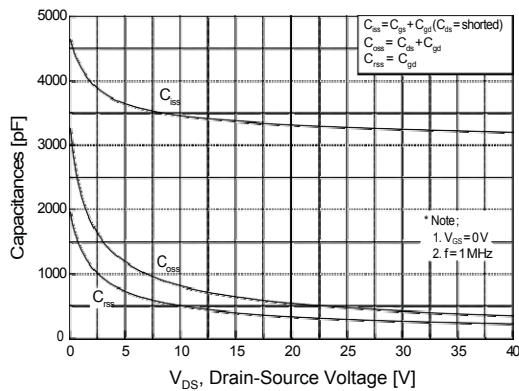
**Figure 2. Transfer Characteristics**



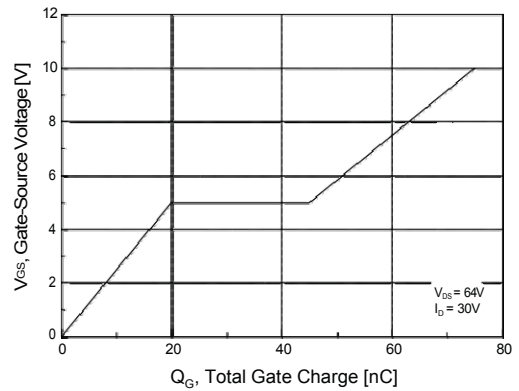
**Figure 3. On Resistance Variation with Drain Current and Gate Voltage**



**Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature**

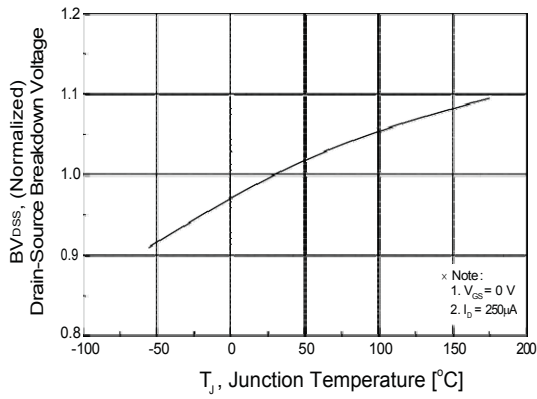


**Figure 5. Capacitance Characteristics**

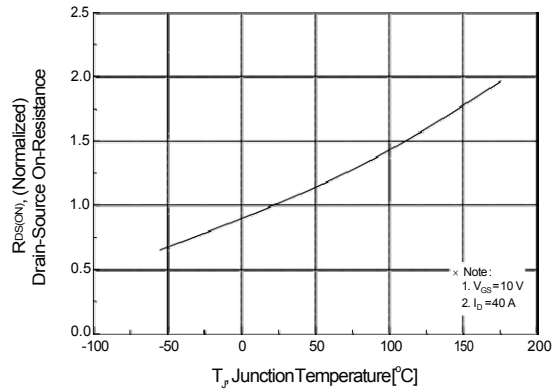


**Figure 6. Gate Charge Characteristics**

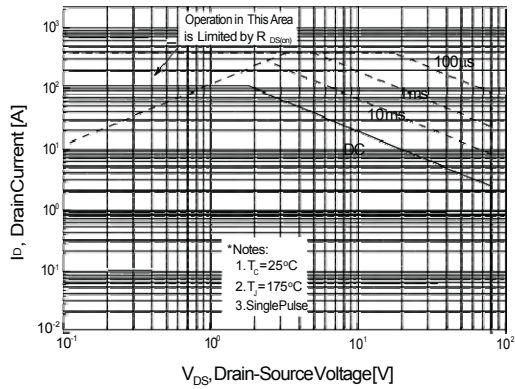
**Typical Characteristics (continued)**



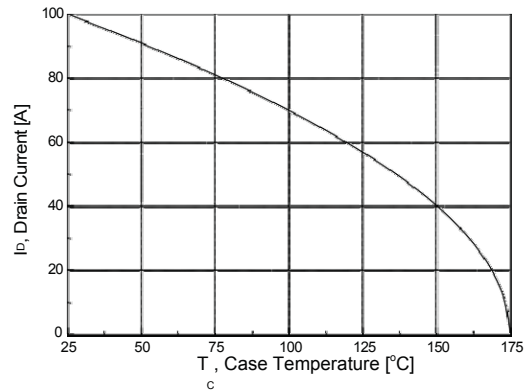
**Figure 7. Breakdown Voltage Variation vs Temperature**



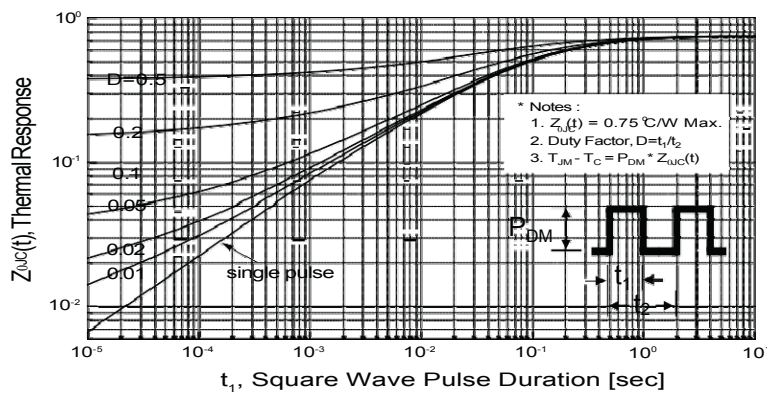
**Figure 8. On-Resistance Variation vs Temperature**



**Figure 9. Maximum Safe Operating Area**



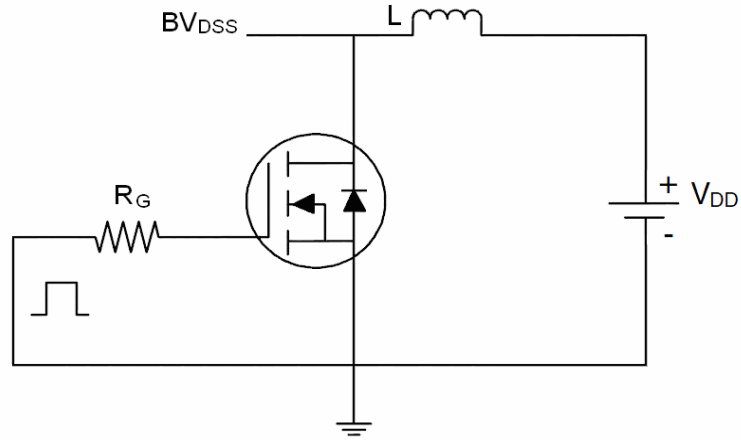
**Figure 10. Maximum Drain Current vs Case Temperature**



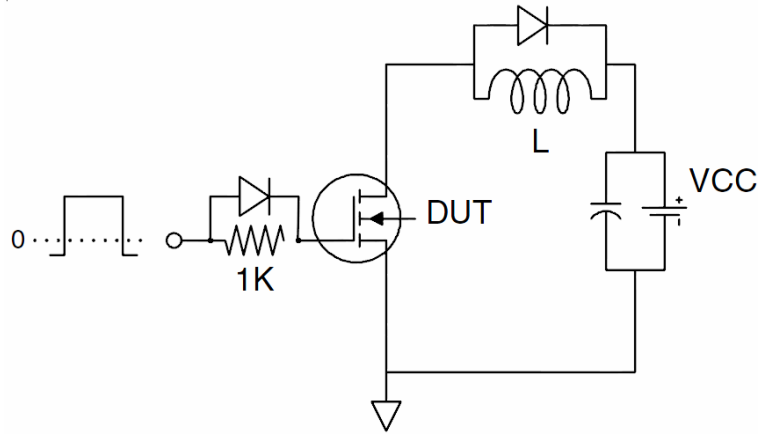
**Figure 11. Transient Thermal Response Curve**

Test Circuit

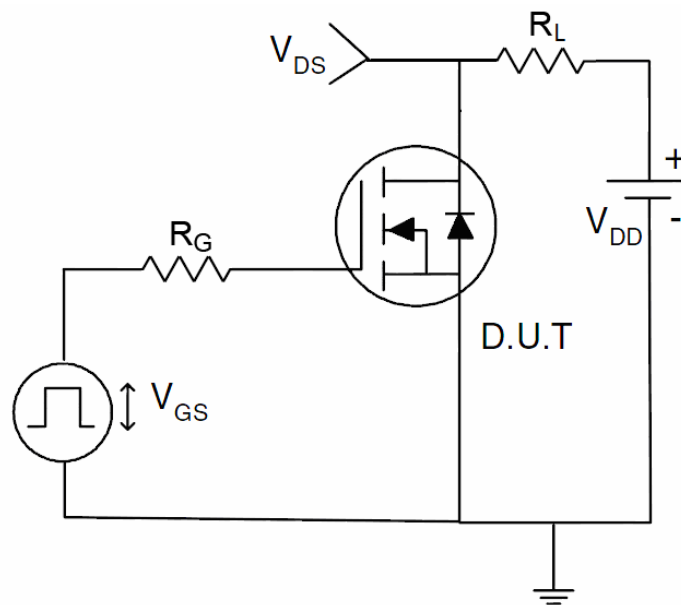
1)  $E_{AS}$  test Circuit



2) Gate charge test Circuit



3) Switch Time Test Circuit



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