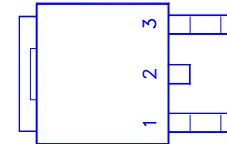
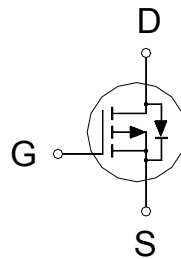




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-40V	15mΩ	-45A



- 1. GATE
- 2. DRAIN
- 3. SOURCE

**100% Rg tested
100% UIS tested**

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS	SYMBOL	LIMITS	UNITS
Drain-Source Voltage	V_{DS}	-40	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	T _C = 25 °C	-45
		T _C = 70 °C	-36
Pulsed Drain Current ¹	I_{DM}	-150	A
Avalanche Current	I_{AS}	-45	
Avalanche Energy ²	E_{AS}	102	mJ
Power Dissipation	P_D	T _c = 25 °C	50
		T _c = 70 °C	32
Junction & Storage Temperature Range	T _J , T _{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$		75	°C / W
Junction-to-Case	$R_{\theta JC}$		2.5	

¹Pulse width limited by maximum junction temperature.

²V_{DD} = -20V . Starting T_J = 25°C.

ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

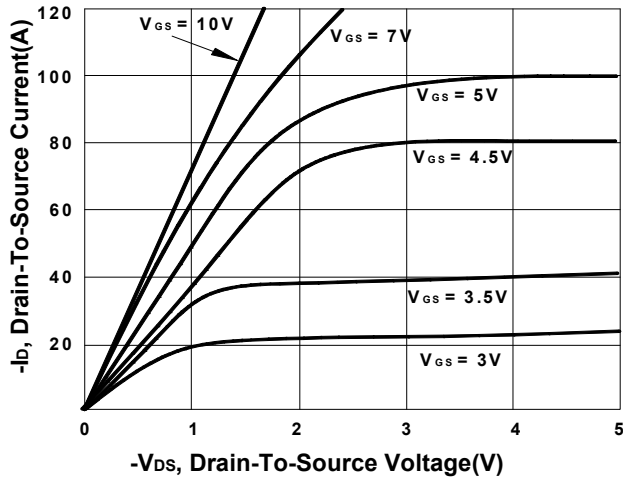
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	-40			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	-1.7	-2.2	-3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -32V, V_{GS} = 0V$			1	μA
		$V_{DS} = -30V, V_{GS} = 0V, T_J = 55 °C$			10	

Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = -4.5V, I_D = -15A$	19	29	m Ω
		$V_{GS} = -10V, I_D = -25A$	13	15	
Forward Transconductance ¹	g_{fs}	$V_{DS} = -5V, I_D = -25A$	24		S
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = -5V, V_{GS} = -10V,$	-150		A
DYNAMIC					
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = -15V, f = 1MHz$	2700	2950	pF
Output Capacitance	C_{oss}		400	430	
Reverse Transfer Capacitance	C_{rss}		230	250	
Gate Resistance	R_g	$V_{GS} = -15mV, V_{DS} = 0V, f = 1MHz$	3.5	4.5	Ω
Total Gate Charge ²	Q_g	$V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = -10V,$ $I_D = -25A$	40	45	nC
Gate-Source Charge ²	Q_{gs}		10	13	
Gate-Drain Charge ²	Q_{gd}		5	8	
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DS} = -20V, R_L = 0.75\Omega$ $I_D \cong 1A, V_{GS} = -10V, R_{GEN} = 6\Omega$	11		nS
Rise Time ²	t_r		75		
Turn-Off Delay Time ²	$t_{d(off)}$		89		
Fall Time ²	t_f		35		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25^\circ C$)					
Continuous Current	I_S			-25	A
Forward Voltage ¹	V_{SD}	$I_F = I_S, V_{GS} = 0V$	-0.7	-1.3	V
Reverse Recovery Time	t_{rr}	$I_F = -25A, di_F/dt = 100A / \mu S$	28		nS
Reverse Recovery Charge	Q_{rr}		26		nC

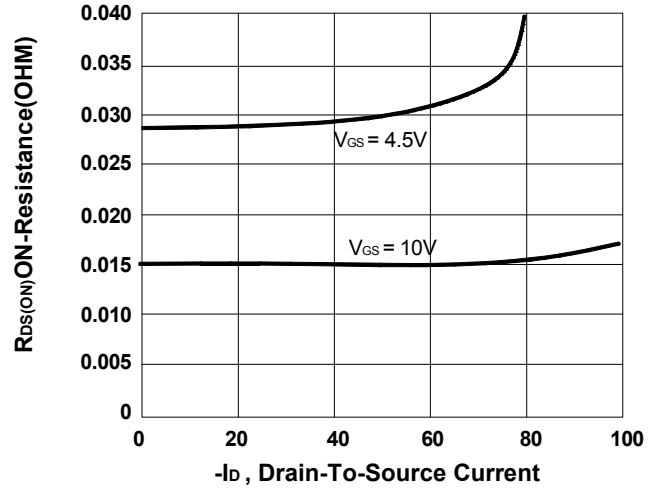
¹Pulse test : Pulse Width $\leq 300 \mu sec$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

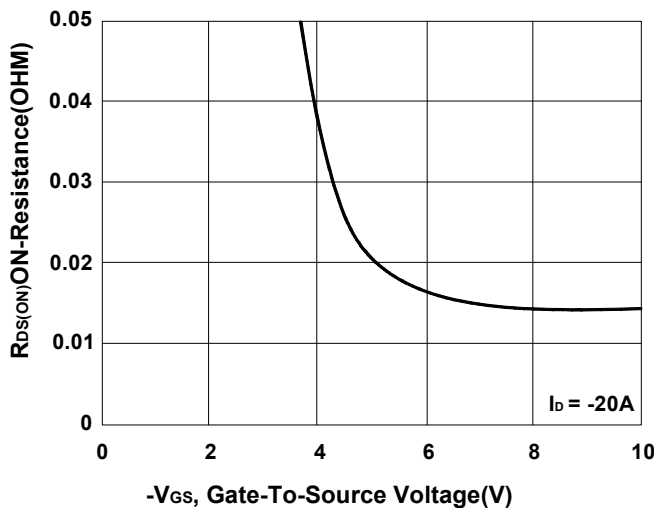
Output Characteristics



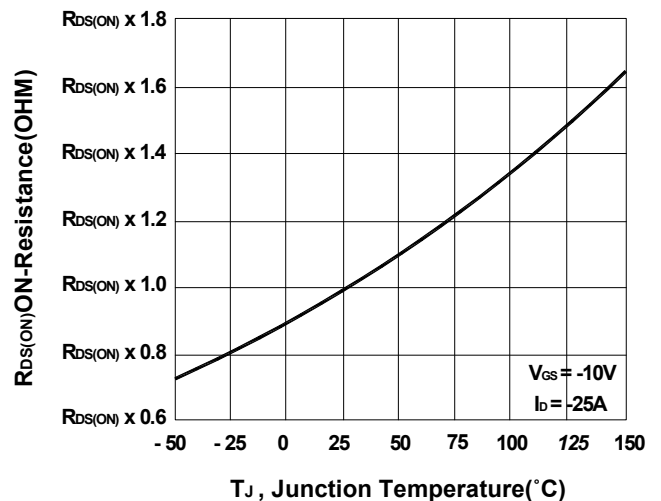
On-Resistance VS Drain Current



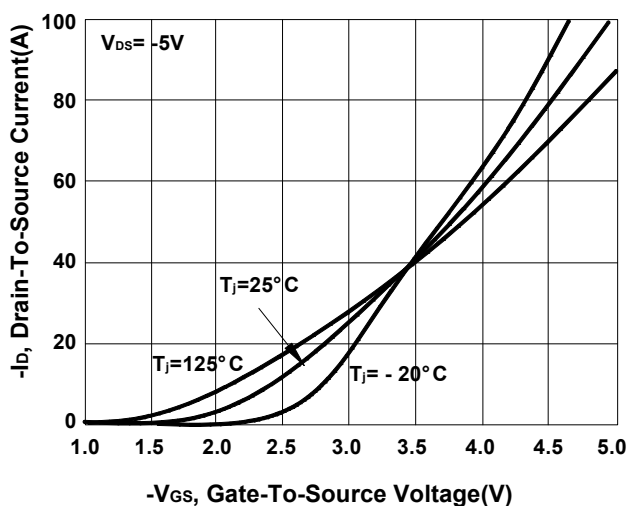
On-Resistance VS Gate-To-Source



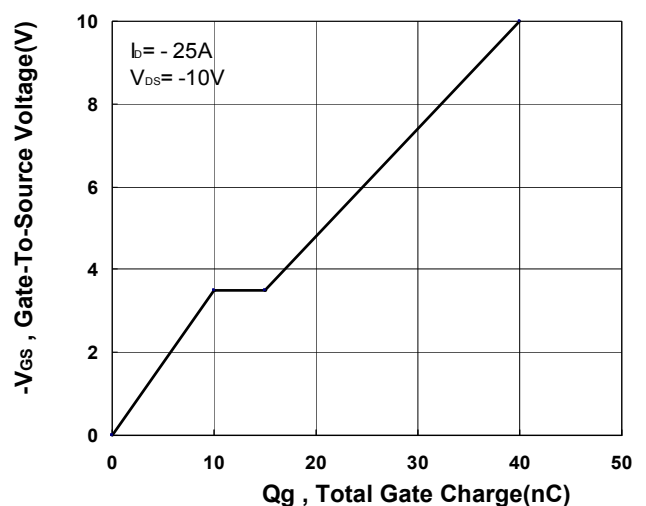
On-Resistance VS Temperature



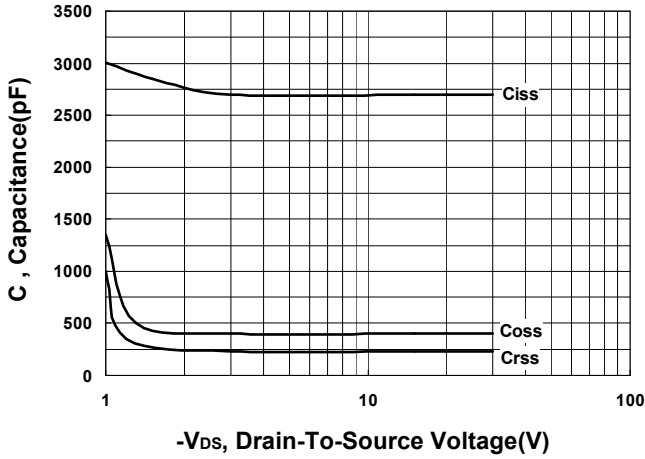
Transfer Characteristics



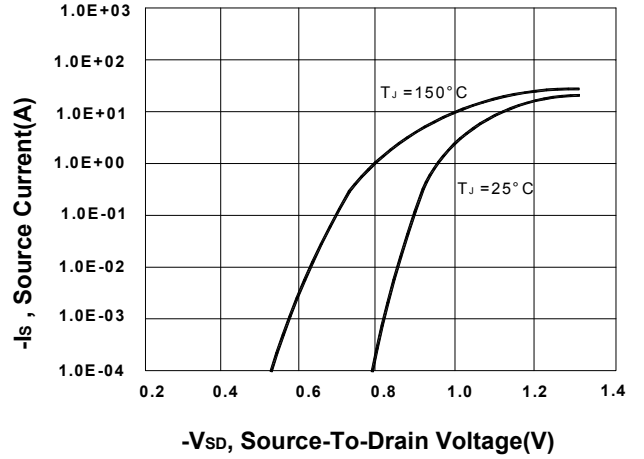
Gate charge Characteristics



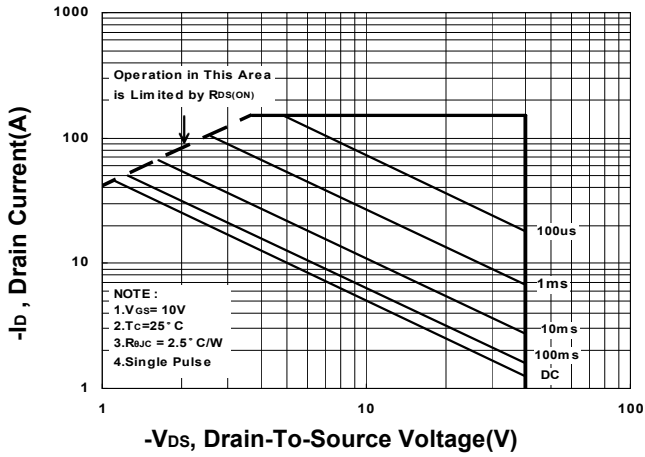
Capacitance Characteristic



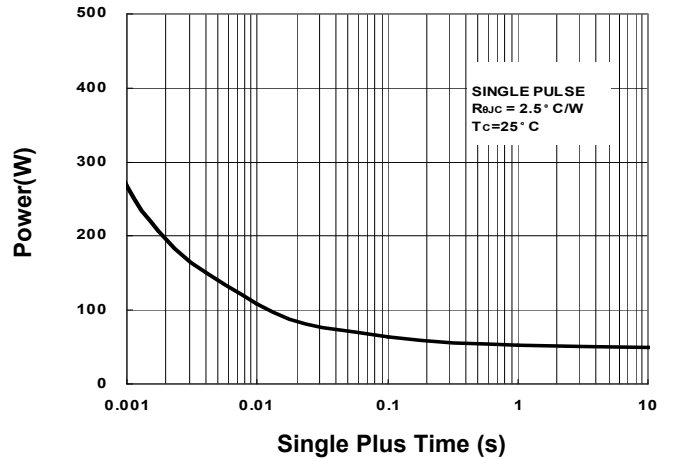
Body Diode Forward Voltage VS Source current



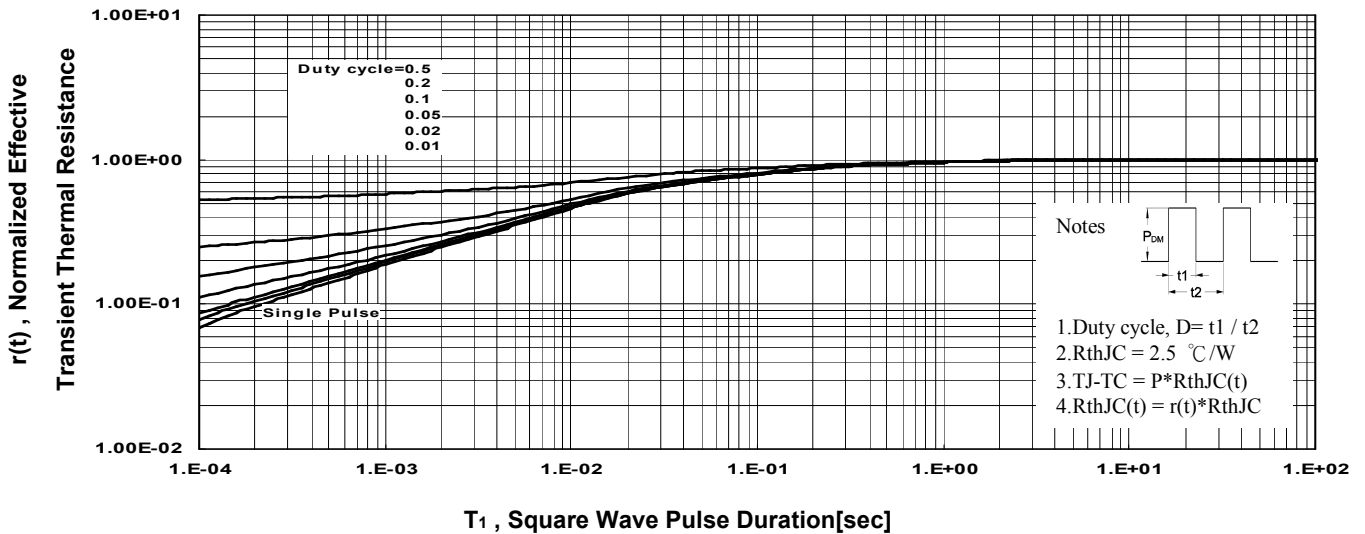
Safe Operating Area



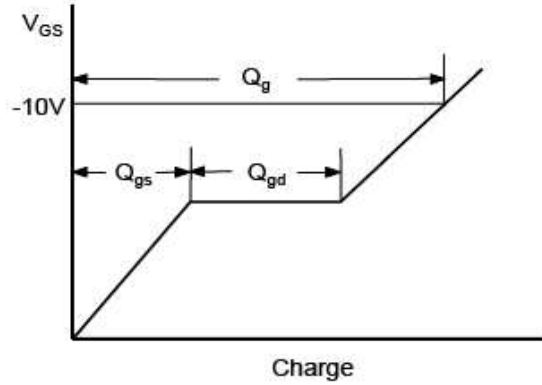
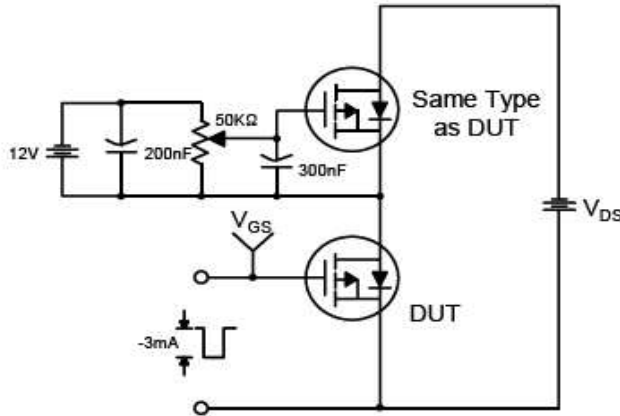
Single Pulse Maximum Power Dissipation



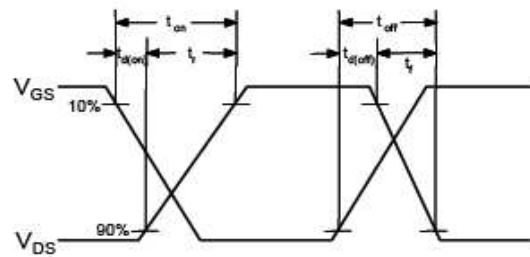
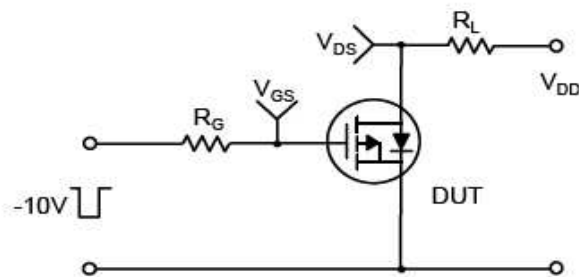
Transient Thermal Response Curve



Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms

