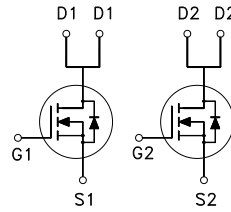


PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
40V	25mΩ	18A

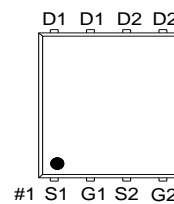


Features

- Pb-Free, Halogen Free and RoHS compliant.
- Low $R_{DS(on)}$ to Minimize Conduction Losses.
- Ohmic Region Good $R_{DS(on)}$ Ratio.
- Optimized Gate Charge to Minimize Switching Losses.

Applications

- Protection Circuits Applications.
- Portable Devices for Battery PACK Applications.



G : GATE
D : DRAIN
S : SOURCE

ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ °C}$ 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	$T_C = 25\text{ °C}$	I_D	18	A
	$T_C = 100\text{ °C}$		11	
	$T_A = 25\text{ °C}$		6.9	
	$T_A = 70\text{ °C}$		5.5	
Pulsed Drain Current ¹		I_{DM}	30	
Avalanche Current		I_{AS}	14	
Avalanche Energy	L = 0.1mH	E_{AS}	9.8	mJ
Power Dissipation	$T_C = 25\text{ °C}$	P_D	17	W
	$T_C = 100\text{ °C}$		7.1	
	$T_A = 25\text{ °C}$		2.5	
	$T_A = 70\text{ °C}$		1.6	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE		SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient ²	$t \leq 10s$	$R_{\theta JA}$		50	°C / W
Junction-to-Ambient ²	Steady-State			90	
Junction-to-Case	Steady-State	$R_{\theta JC}$		7	

¹Pulse width limited by maximum junction temperature.

²The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ C$

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	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.3	1.7	2.3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 40V, V_{GS} = 0V$			1	μA
		$V_{DS} = 40V, V_{GS} = 0V, T_J = 55^\circ C$			10	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 6.9A$		22	35	mΩ
		$V_{GS} = 10V, I_D = 6.9A$		19	25	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 10V, I_D = 6.9A$		28		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 20V, f = 1MHz$		413		pF
Output Capacitance	C_{oss}			63		
Reverse Transfer Capacitance	C_{rss}			41		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		4.2		Ω
Total Gate Charge ²	$Q_{g(VGS=10V)}$	$V_{DS} = 20V, I_D = 6.9A$		9.8		nC
	$Q_{g(VGS=4.5V)}$			5.4		
Gate-Source Charge ²	Q_{gs}			1		
Gate-Drain Charge ²	Q_{gd}			3.1		
Turn-On Delay Time ²	$t_{d(on)}$		$V_{DD} = 0V$ $I_D \cong 6.9A, V_{GEN} = 10V, R_G = 6\Omega$		6	
Rise Time ²	t_r			65		
Turn-Off Delay Time ²	$t_{d(off)}$			17		
Fall Time ²	t_f			101		

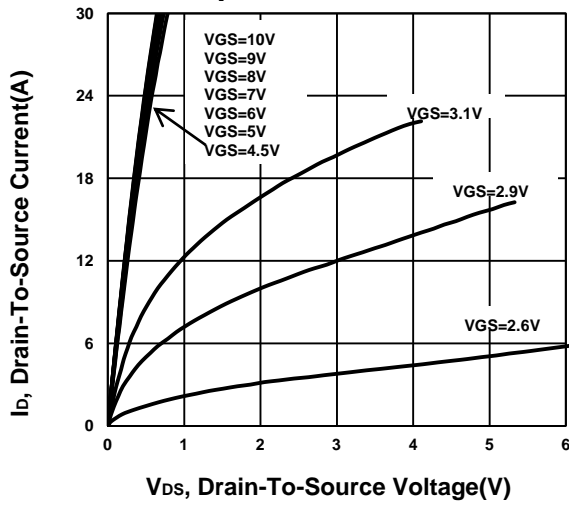
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)

Continuous Current ³	I _S			13	A
Forward Voltage ¹	V _{SD}	I _F = 6.9A, V _{GS} = 0V		1.3	V
Reverse Recovery Time	t _{rr}	I _F = 6.9A , di _F /dt = 100A / μS		3.3	nS
Reverse Recovery Charge	Q _{rr}			1	nC

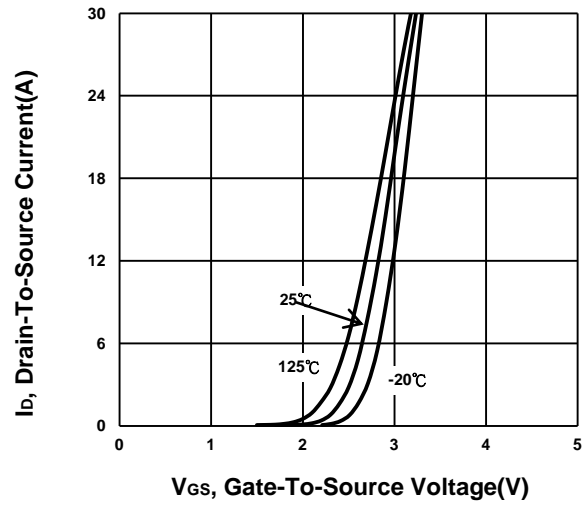
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

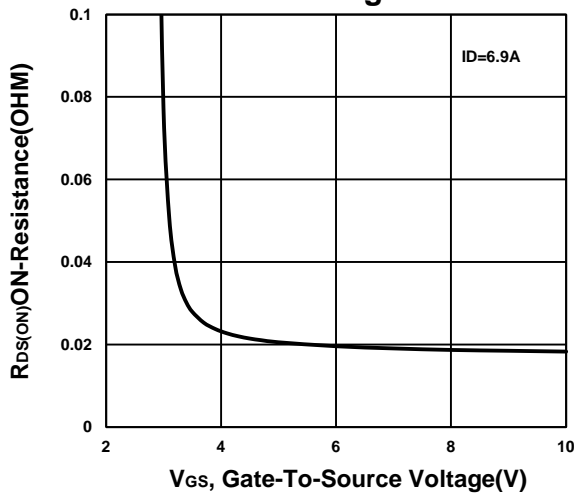
Output Characteristics



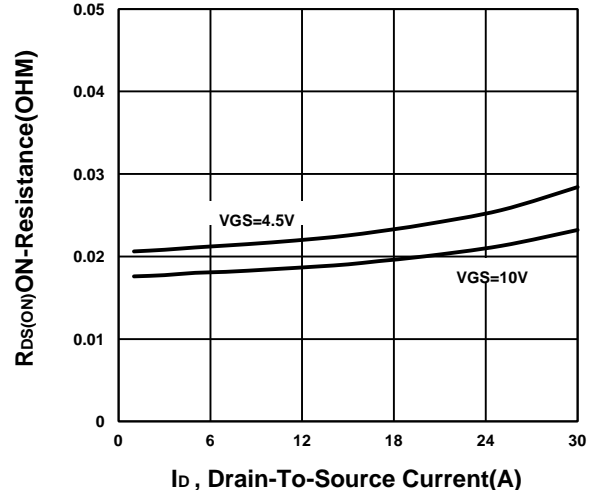
Transfer Characteristics



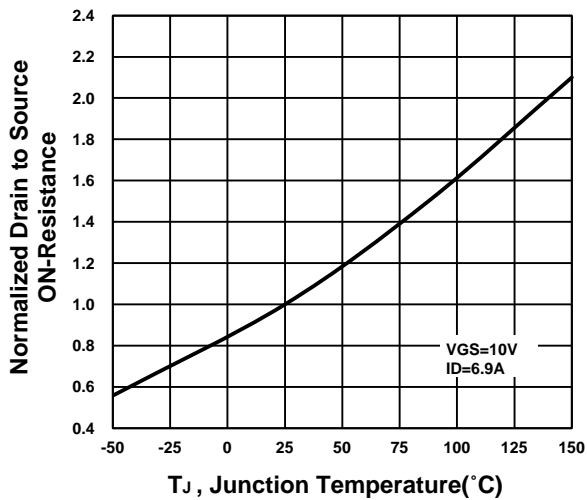
On-Resistance VS Gate-To-Source Voltage



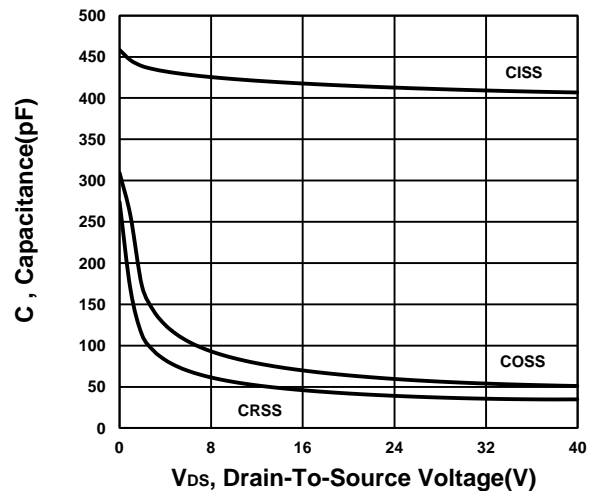
On-Resistance VS Drain Current



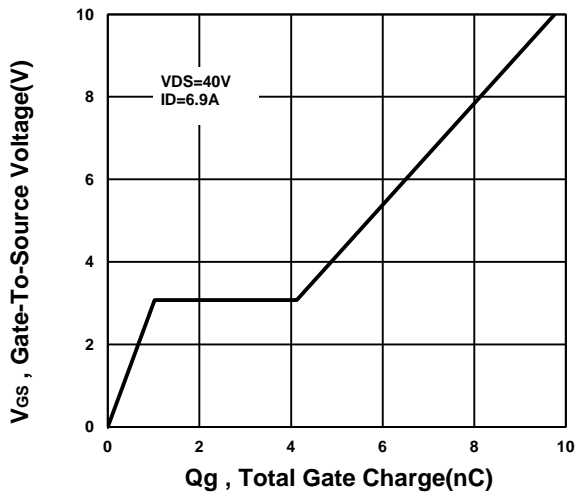
On-Resistance VS Temperature



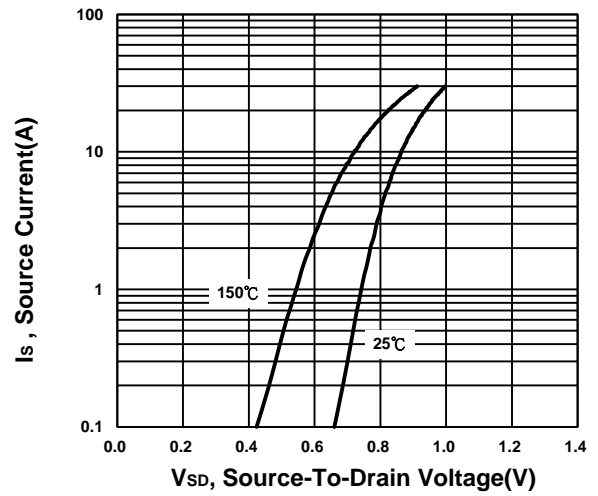
Capacitance Characteristic



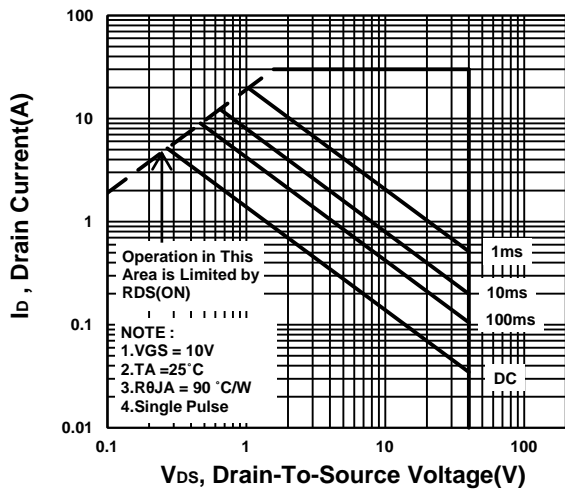
Gate charge Characteristics



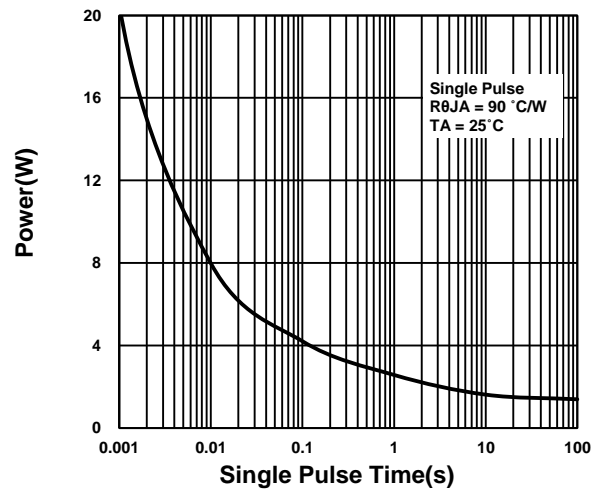
Source-Drain Diode Forward Voltage



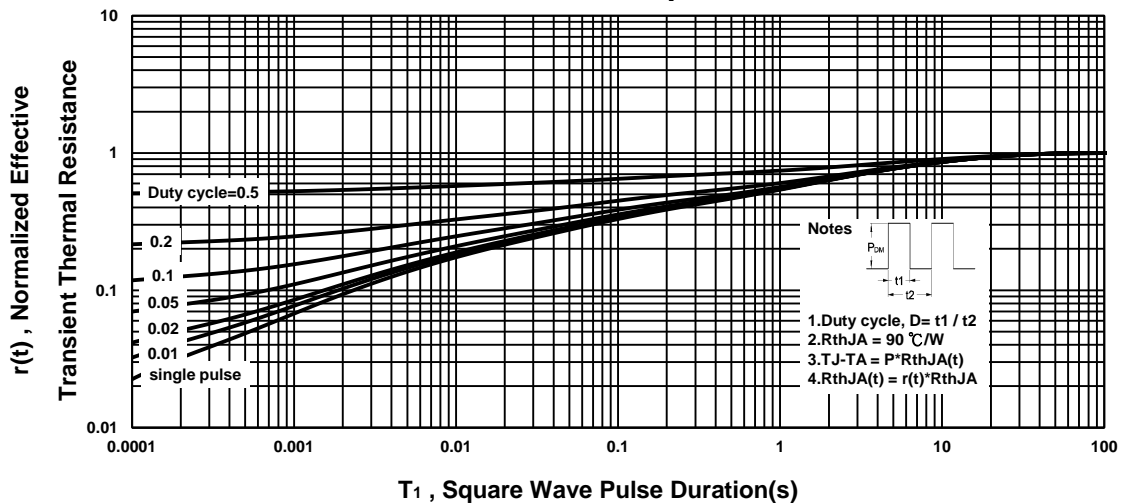
Safe Operating Area



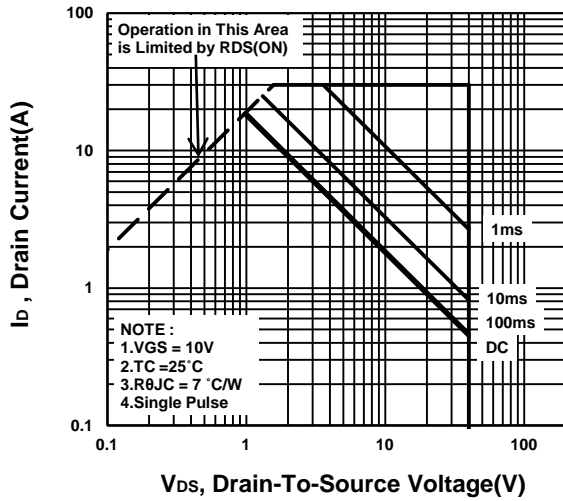
Single Pulse Maximum Power Dissipation



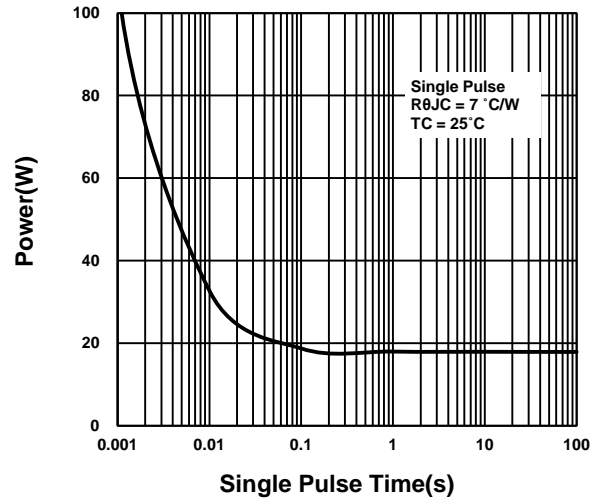
Transient Thermal Response Curve



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

