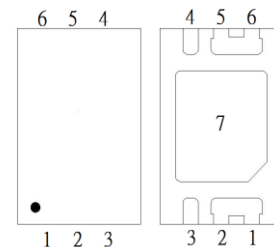
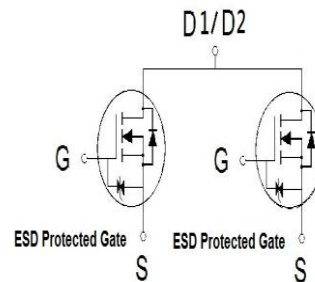




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
20V	19.5mΩ	7A



1,2:S1
3:G1
4:G2
5,6:S2
7:D1/D2

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.
- Products Integrated ESD diode with ESD Protected up to 2KV.

Applications

- Protection Circuits Applications.
- Logic/Load Switch Circuits Applications.
- Portable Devices for Battery PACK Applications.

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±10	V
Continuous Drain Current	$T_A = 25^\circ\text{C}$	I_D	7	A
	$T_A = 70^\circ\text{C}$		6	
Pulsed Drain Current ¹		I_{DM}	25	
Avalanche Current		I_{AS}	13	
Avalanche Energy ³		E_{AS}	8.5	mJ
Power Dissipation	$T_A = 25^\circ\text{C}$	P_D	1.8	W
	$T_A = 70^\circ\text{C}$		1.2	
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	$R_{\theta JA}$		68	°C / W

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 $T_A = 25^\circ\text{C}$.

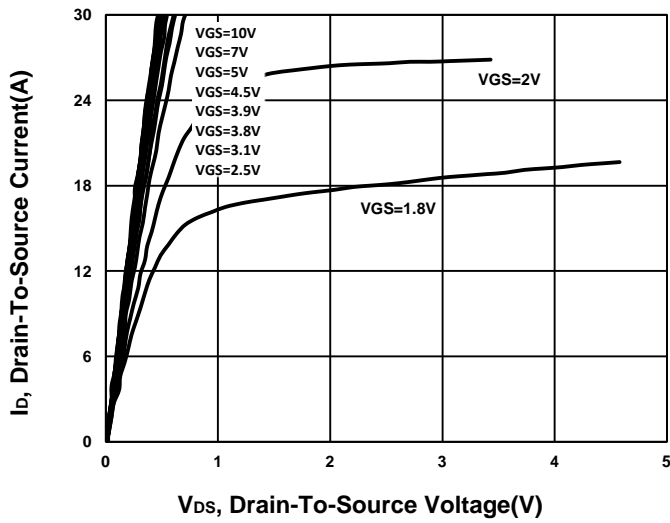
ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS		
			MIN	TYP	MAX			
STATIC								
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	20			V		
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.35	0.8	1			
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±8V			±10	μA		
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 16V, V _{GS} = 0V			1	μA		
		V _{DS} = 10V, V _{GS} = 0V, T _J = 125 °C			10			
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 4.5V, I _D = 3A		14.8	19.5	mΩ		
		V _{GS} = 3.8V, I _D = 3A		15.3	23			
		V _{GS} = 3.1V, I _D = 3A		16.5	24.5			
		V _{GS} = 2.5V, I _D = 3A		18.6	28			
		V _{GS} = 1.8V, I _D = 3A		28	40			
Forward Transconductance ¹	g _{fs}	V _{DS} = 5V, I _D = 3A		30		S		
DYNAMIC								
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 10V, f = 1MHz		593		pF		
Output Capacitance	C _{oss}			111				
Reverse Transfer Capacitance	C _{rss}			85				
Total Gate Charge ²	Q _{g(VGS=4.5V)}	V _{DS} = 10V, I _D = 3A		8.2		nC		
	Q _{g(VGS=3.8V)}			7				
Gate-Source Charge ²	Q _{gs}			0.7				
Gate-Drain Charge ²	Q _{gd}			3				
Turn-On Delay Time ²	t _{d(on)}		V _{DD} = 10V I _D ≅ 3A, V _{GS} = 4.5V, R _{GS} = 6Ω		15			nS
Rise Time ²	t _r				25			
Turn-Off Delay Time ²	t _{d(off)}			35				
Fall Time ²	t _f			13				
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)								
Continuous Current	I _S				1.5	A		
Forward Voltage ¹	V _{SD}	I _F = 3A, V _{GS} = 0V			1.2	V		
Reverse Recovery Time	t _{rr}	I _F = 3A, di _F /dt = 100A / μS		10		nS		
Reverse Recovery Charge	Q _{rr}				2.6		nC	

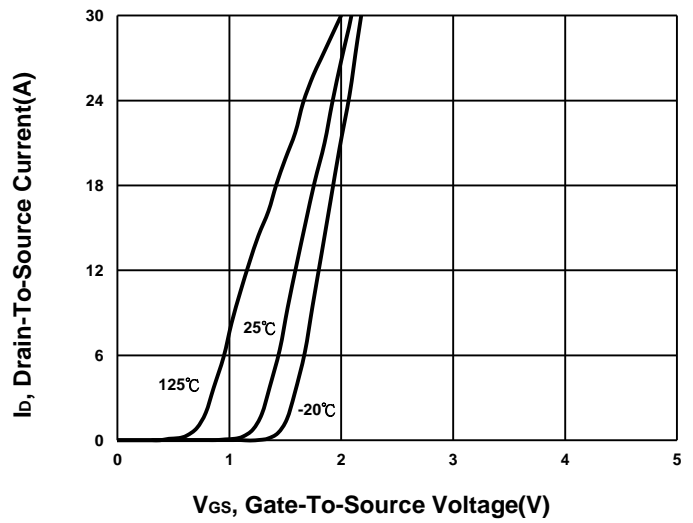
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

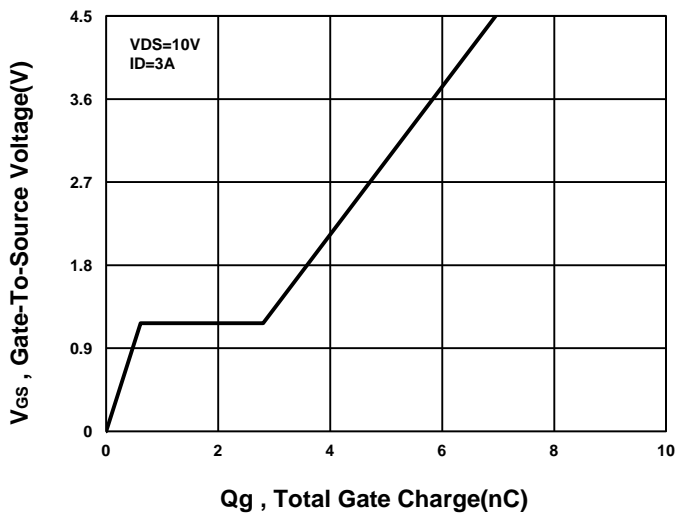
Output Characteristics



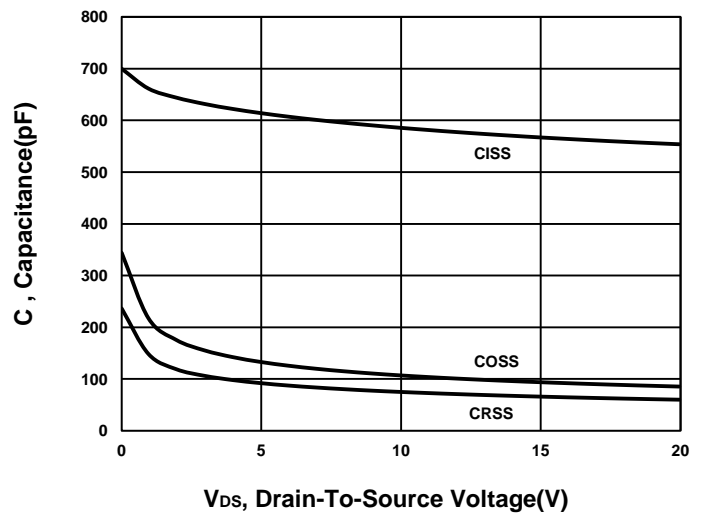
Transfer Characteristics



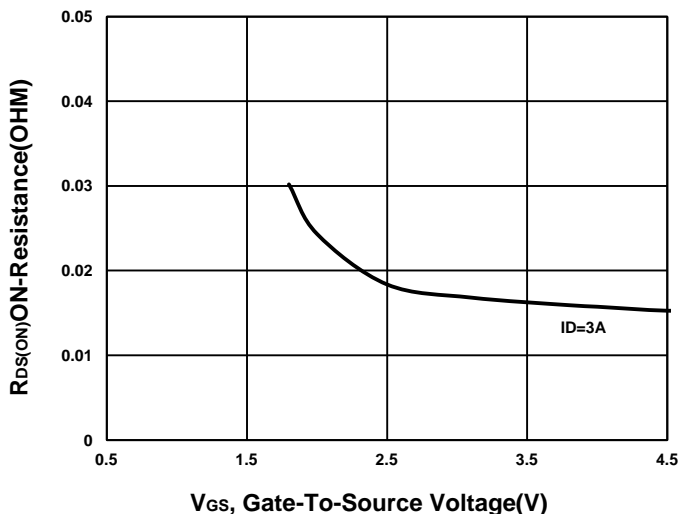
Gate charge Characteristics



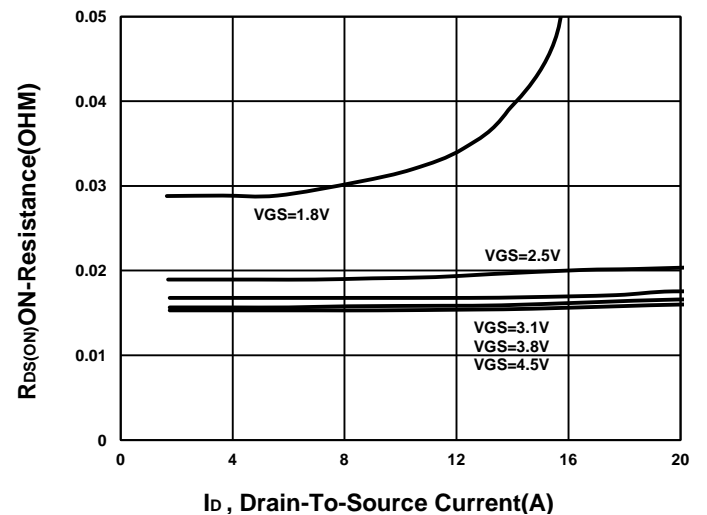
Capacitance Characteristic



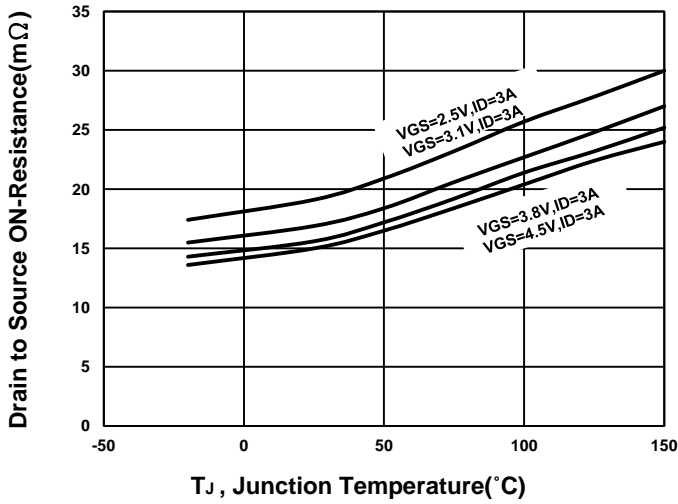
On-Resistance VS Gate-To-Source



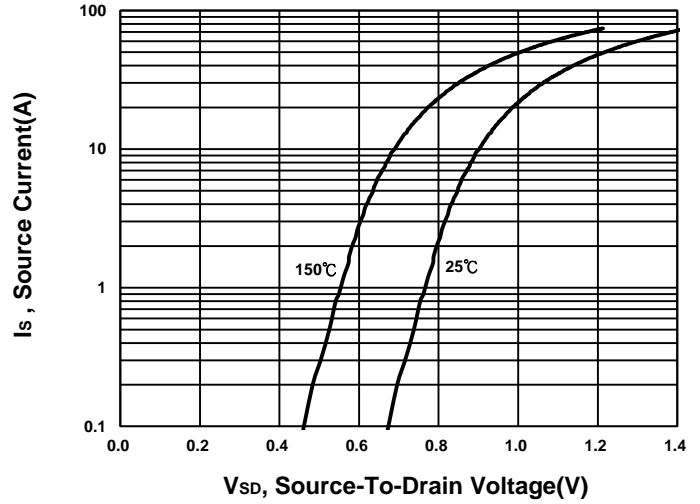
On-Resistance VS Drain Current



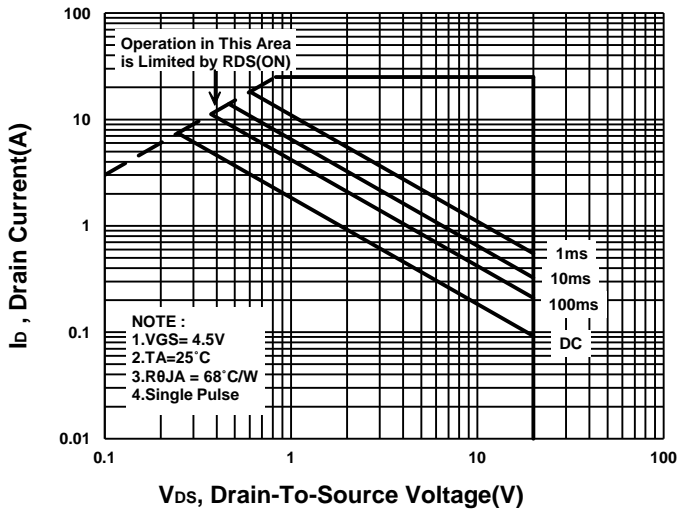
On-Resistance VS Temperature



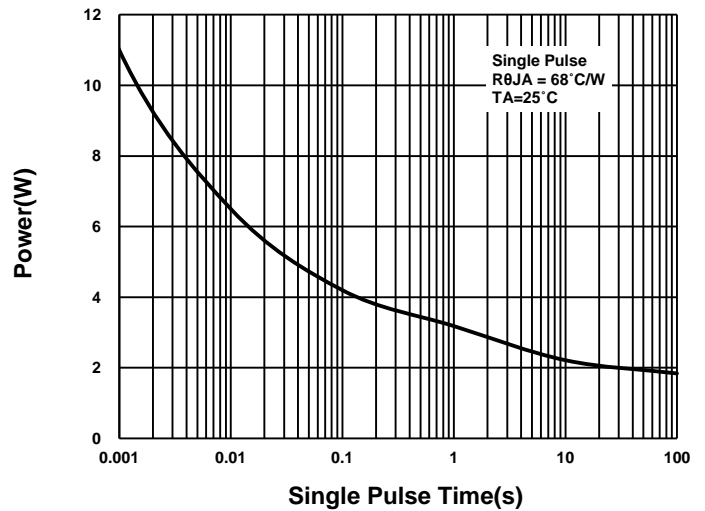
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

