

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
20V	35m Ω	5A

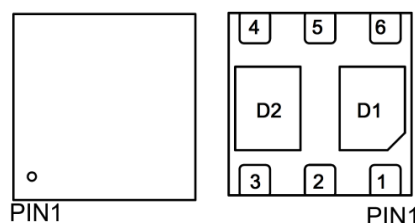
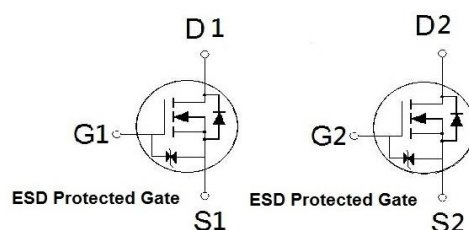


Features

- 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.

Applications

- Protection Circuits Applications.
- Logic/Load Switch Circuits Applications.



1 : S1. 4 : S2.
2 : G1. 5 : G2.
3 : D2. 6 : D1.

100% RG Test , 100% UIL Test

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	± 8	V
Continuous Drain Current	$T_A = 25\text{ }^{\circ}\text{C}$	I_D	5	A
	$T_A = 70\text{ }^{\circ}\text{C}$		3.9	
Pulsed Drain Current ¹		I_{DM}	20	
Power Dissipation	$T_A = 25\text{ }^{\circ}\text{C}$	P_D	1.4	W
	$T_A = 70\text{ }^{\circ}\text{C}$		0.9	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	$^{\circ}\text{C}$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient ²	$R_{\theta JA}$		86	$^{\circ}\text{C}/\text{W}$

¹Pulse width limited by maximum junction temperature.

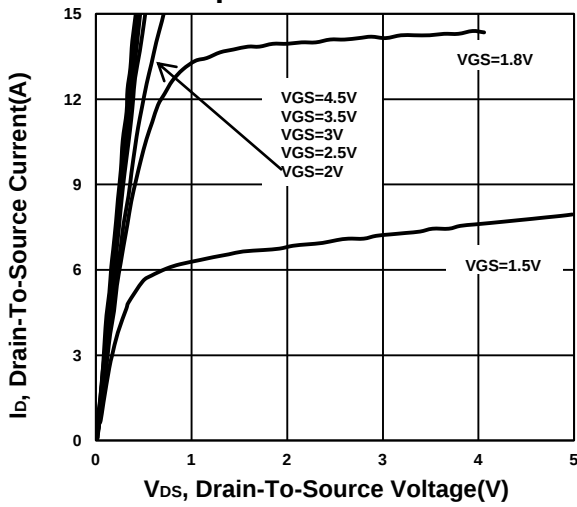
²The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Coppe.

ELECTRICAL CHARACTERISTICS ($T_J = 25\text{ }^{\circ}\text{C}$, Unless Otherwise Noted)

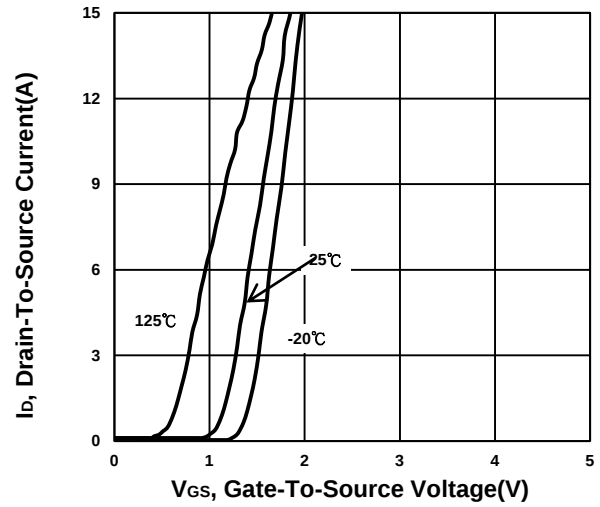
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.5	0.7	1	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 8V$			± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 16V, V_{GS} = 0V$			1	μA
		$V_{DS} = 10V, V_{GS} = 0V, T_J = 55\text{ }^{\circ}C$			10	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 5A$		22	35	$m\Omega$
		$V_{GS} = 2.5V, I_D = 4.5A$		27	38	
		$V_{GS} = 1.8V, I_D = 2A$		35	55	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 5A$		30		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 10V, f = 1MHz$		506		pF
Output Capacitance	C_{oss}			82		
Reverse Transfer Capacitance	C_{rss}			66		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		1.8		Ω
Total Gate Charge ²	$Q_g(V_{GS}=4.5V)$	$V_{DS} = 10V, I_D = 5A$		7		nC
	$Q_g(V_{GS}=2.5V)$			4.3		
Gate-Source Charge ²	Q_{gs}			0.6		
Gate-Drain Charge ²	Q_{gd}			2.3		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DD} = 10V$ $I_D \cong 5A, V_{GEN} = 4.5V, R_G = 6\Omega$		12		nS
Rise Time ²	t_r			35		
Turn-Off Delay Time ²	$t_{d(off)}$			24		
Fall Time ²	t_f			16		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25\text{ }^{\circ}C$)						
Continuous Current	I_S				1.4	A
Forward Voltage ¹	V_{SD}	$I_F = 5A, V_{GS} = 0V$			1	V
Reverse Recovery Time	t_{rr}	$I_F = 5A, dI_F/dt = 100A / \mu S$		8.8		nS
Reverse Recovery Charge	Q_{rr}			1.4		nC

¹Pulse test : Pulse Width $\leq 300\text{ }\mu\text{sec}$, Duty Cycle $\leq 2\%$.²Independent of operating temperature.

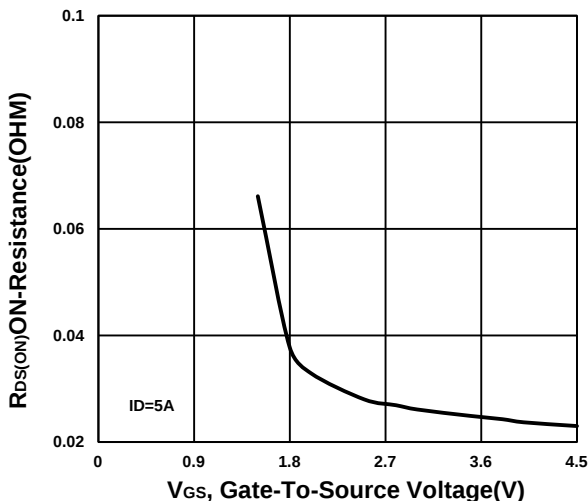
Output Characteristics



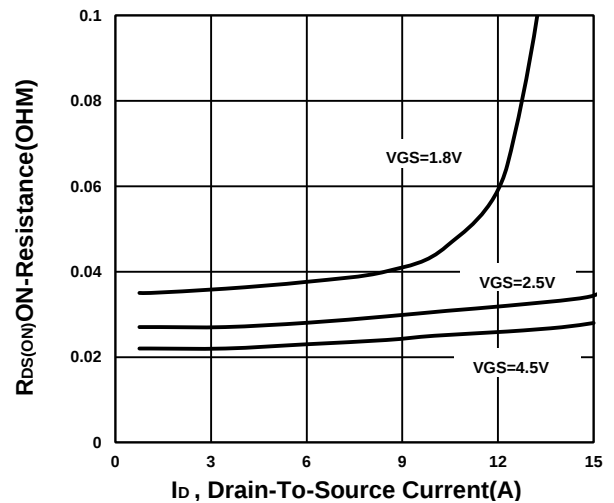
Transfer Characteristics



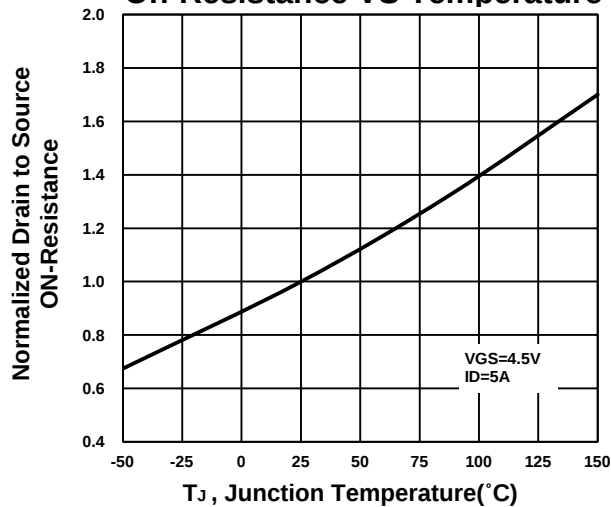
On-Resistance VS Gate-To-Source



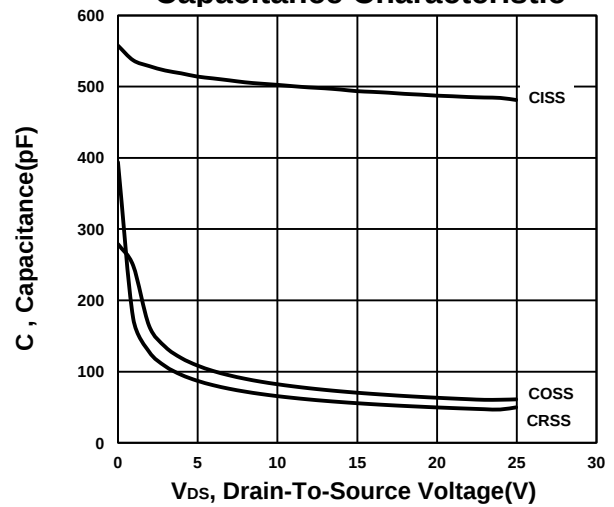
On-Resistance VS Drain Current



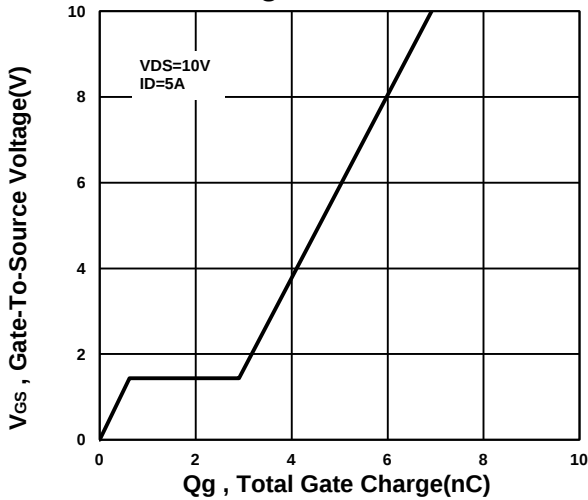
On-Resistance VS Temperature



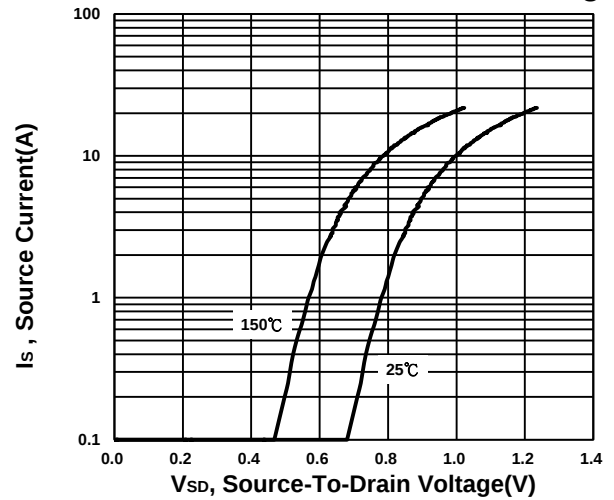
Capacitance Characteristic



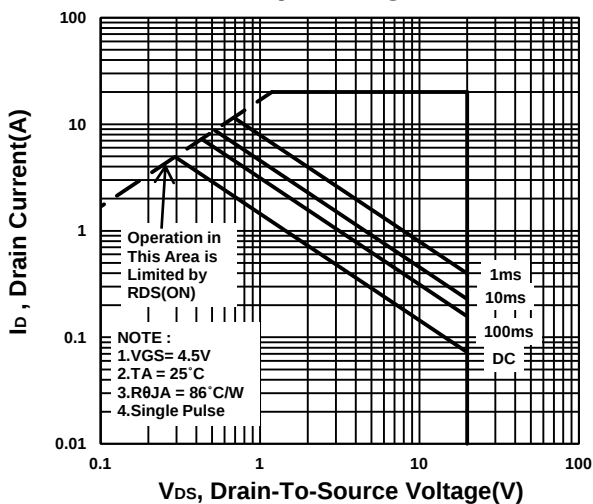
Gate charge Characteristics



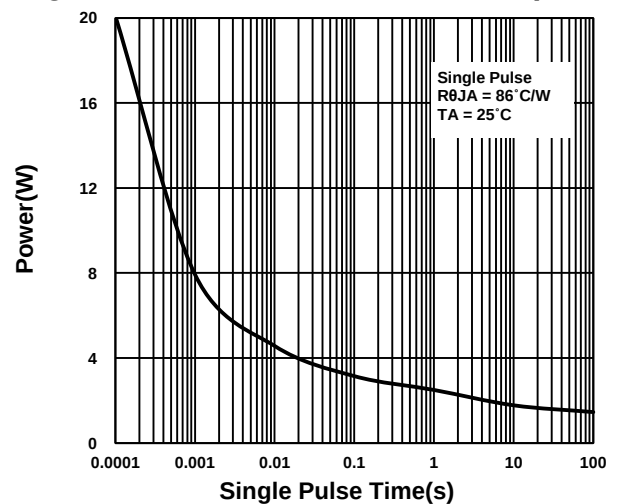
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

