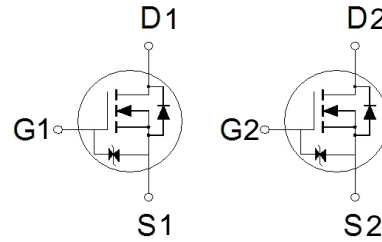




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
20V	300m Ω	0.78A

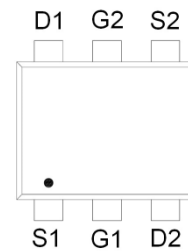


Features

- 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.
- ESD Protection - HBM Class : 1C.

Applications

- Protection Circuits Applications.
- Logic/Load Switch Circuits Applications.
- Space Limit & Smart Devices Applications.



G: GATE
D: DRAIN
S: SOURCE

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	± 10	V
Continuous Drain Current ¹	$T_A = 25\text{ }^\circ\text{C}$	I_D	0.78	A
	$T_A = 70\text{ }^\circ\text{C}$		0.62	
Pulsed Drain Current ²		I_{DM}	2.4	A
Power Dissipation	$T_A = 25\text{ }^\circ\text{C}$	P_D	0.31	W
	$T_A = 70\text{ }^\circ\text{C}$		0.2	
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	$R_{\theta JA}$		400	$^\circ\text{C} / \text{W}$

¹Limited by maximum junction temperature.

²Limited by package.

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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu\text{A}$	20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	0.4	0.63	1	

Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 4.5V$			± 5	μA
		$V_{DS} = 0V, V_{GS} = \pm 8V$			± 10	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 16V, V_{GS} = 0V$			1	μA
		$V_{DS} = 16V, V_{GS} = 0V, T_J = 125\text{ }^\circ C$			5	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 0.5A$		177	300	$m\Omega$
		$V_{GS} = 2.5V, I_D = 0.25A$		226	400	
		$V_{GS} = 1.8V, I_D = 0.2A$		300	700	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 0.5A$		5		S

DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 10V, f = 1MHz$		60		pF
Output Capacitance	C_{oss}			19		
Reverse Transfer Capacitance	C_{rss}			10		
Total Gate Charge ²	Q_g	$V_{GS} = 4.5V, V_{DS} = 20V, I_D = 1A$		1.1		nC
Gate-Source Charge ²	Q_{gs}			0.2		
Gate-Drain Charge ²	Q_{gd}			0.3		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DD} = 10V, I_D \cong 0.5A, V_{GS} = 4.5V, R_{GEN} = 5.1\Omega$		17		nS
Rise Time ²	t_r			36		
Turn-Off Delay Time ²	$t_{d(off)}$			86		
Fall Time ²	t_f			173		

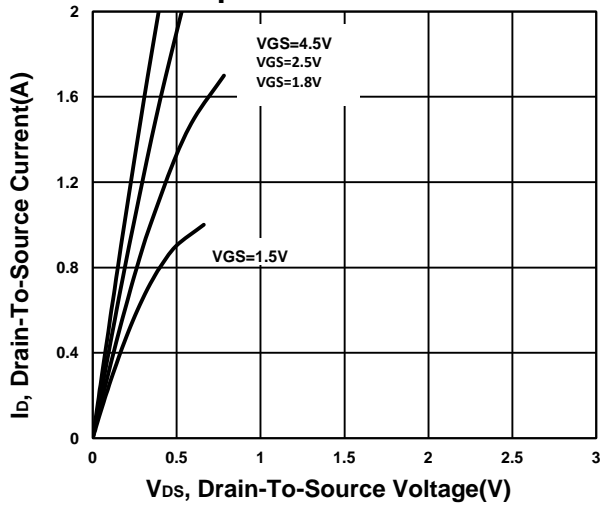
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25\text{ }^\circ C$)

Continuous Current	I_S			0.25	A
Forward Voltage ¹	V_{SD}	$I_F = 0.5A, V_{GS} = 0V$		1.2	V
Reverse Recovery Time	t_{rr}	$I_F = 1A, di/dt = 100 A/\mu s$		111	nS
Reverse Recovery Charge	Q_{rr}			102	μC

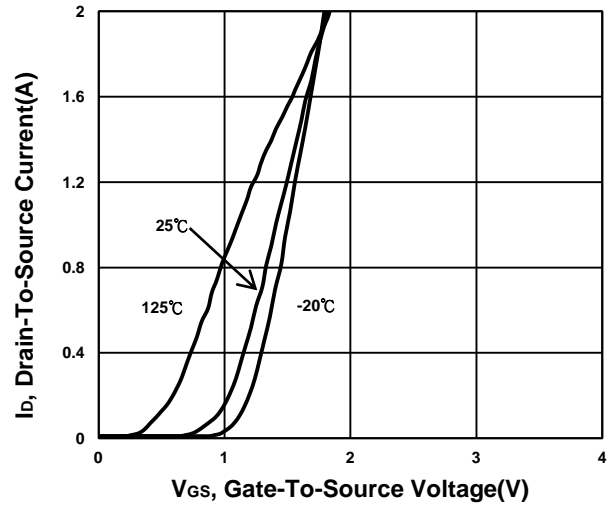
¹Pulse test : Pulse Width $\leq 300\ \mu sec$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

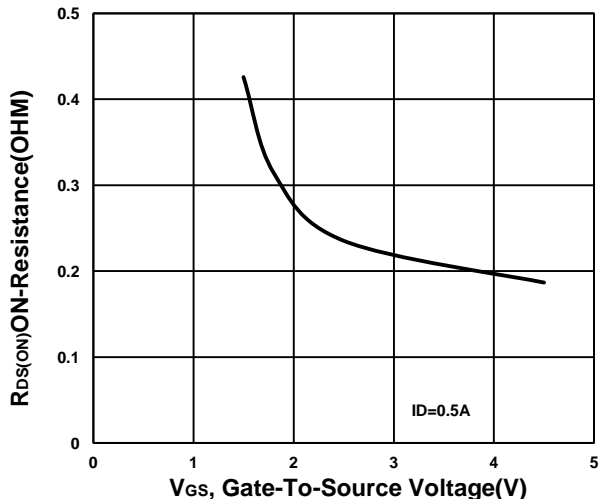
Output Characteristics



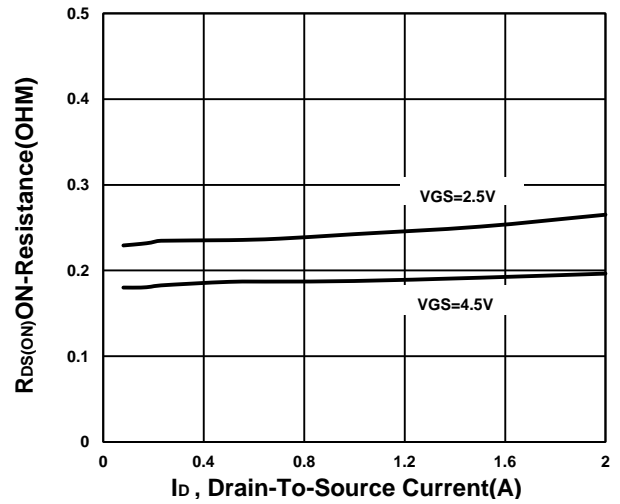
Transfer Characteristics



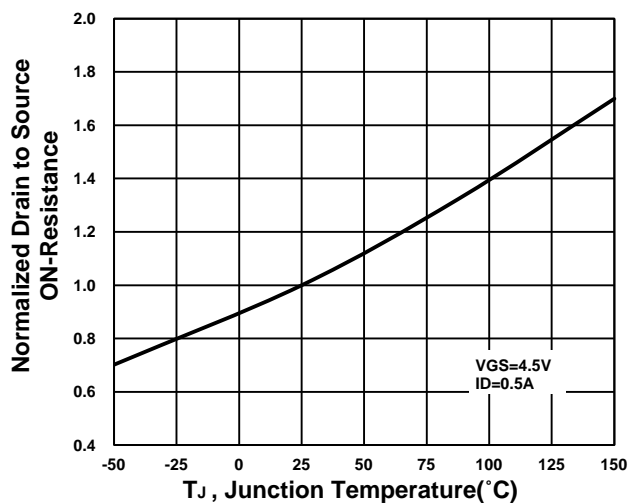
On-Resistance VS Gate-To-Source Voltage



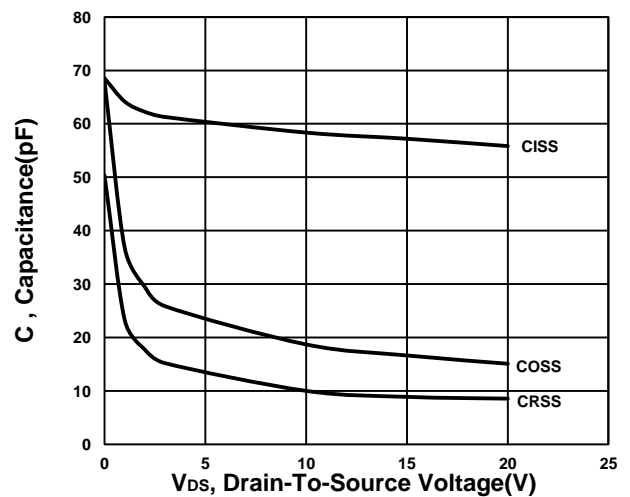
On-Resistance VS Drain Current



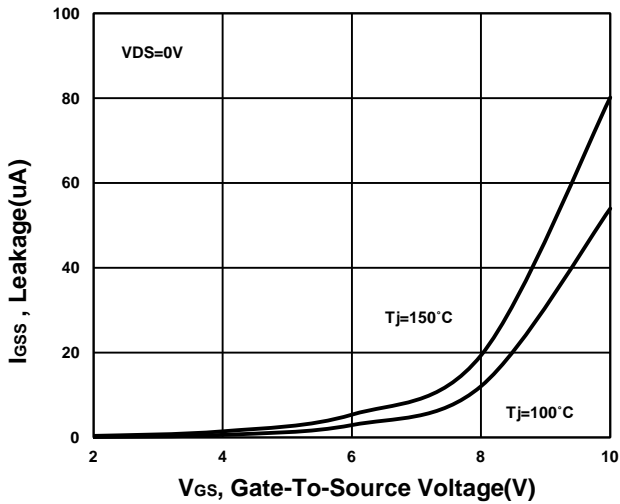
On-Resistance VS Temperature



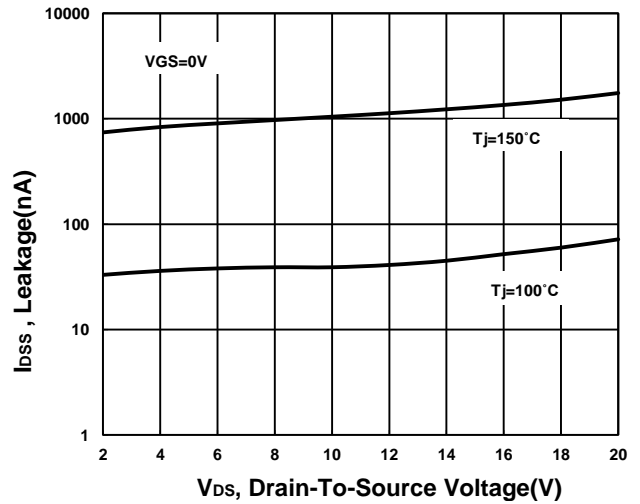
Capacitance Characteristic



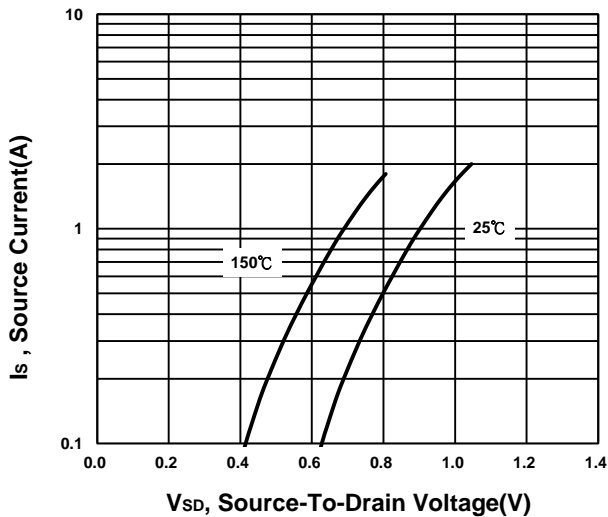
**Gate to Source Leakage Current
versus Voltage**



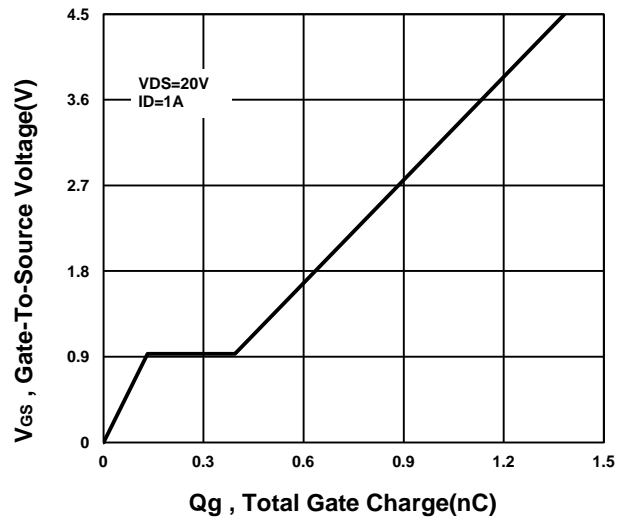
**Drain to Source Leakage Current
versus Voltage**



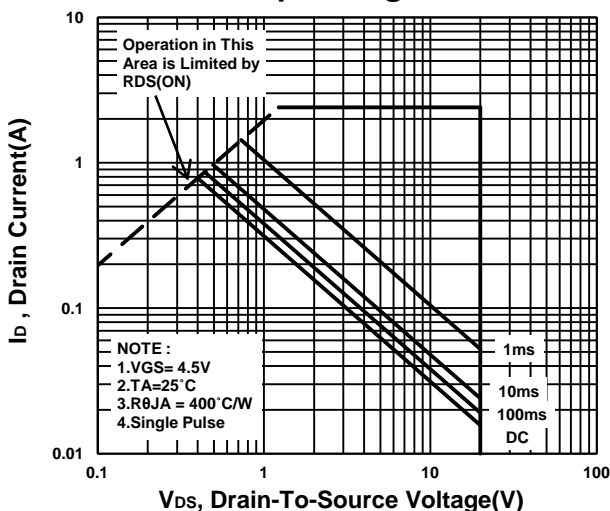
Source-Drain Diode Forward Voltage



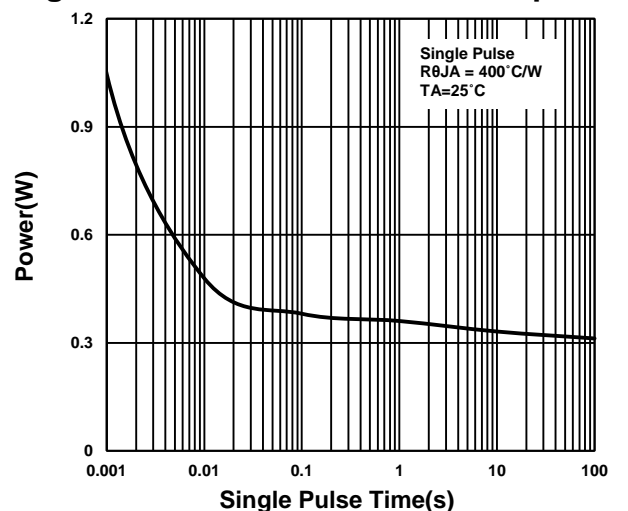
Gate charge Characteristics



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

