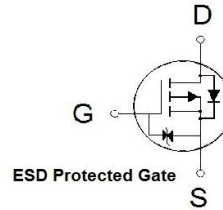




**PRODUCT SUMMARY**

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
-20V	520mΩ	-0.5A

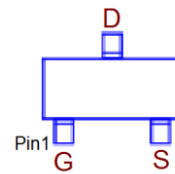


**Features**

- 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.
- ESD Protection.

**Applications**

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



G: GATE  
D: DRAIN  
S: SOURCE

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		$V_{GS}$	±12	V
Continuous Drain Current <sup>2</sup>	$T_A = 25\text{ °C}$	$I_D$	-0.5	A
	$T_A = 70\text{ °C}$		-0.4	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	-1	A
Power Dissipation	$T_A = 25\text{ °C}$	$P_D$	0.25	W
	$T_A = 70\text{ °C}$		0.16	
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	$R_{\theta JA}$		500	°C / W

<sup>1</sup>Limited by maximum junction temperature.

<sup>2</sup>Limited by package.

**ELECTRICAL CHARACTERISTICS ( $T_j = 25\text{ °C}$ , Unless Otherwise Noted)**

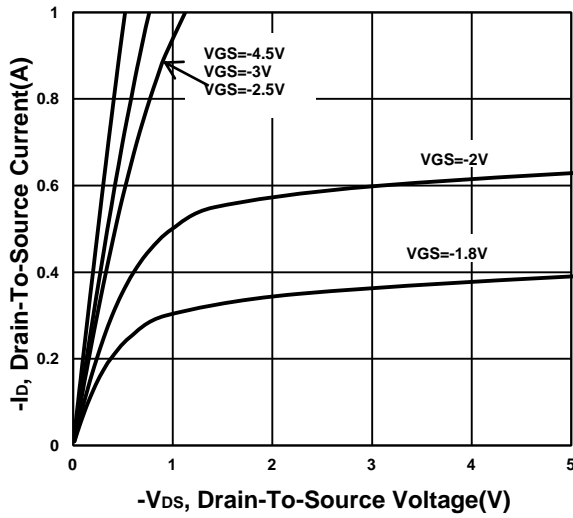
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.4	-0.96	-1.2	

Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 8V$			$\pm 10$	$\mu A$
		$V_{DS} = 0V, V_{GS} = \pm 10V$			$\pm 30$	
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -16V, V_{GS} = 0V$			-1	$\mu A$
		$V_{DS} = -10V, V_{GS} = 0V, T_J = 75^\circ C$			-10	
Drain-Source On-State Resistance <sup>1</sup>	$R_{DS(ON)}$	$V_{GS} = -4.5V, I_D = -450mA$		500	520	$m\Omega$
		$V_{GS} = -2.5V, I_D = -100mA$		770	800	
Forward Transconductance <sup>1</sup>	$g_{fs}$	$V_{DS} = -5V, I_D = -450mA$		1.6		S
<b>DYNAMIC</b>						
Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = -10V, f = 1MHz$		48		$pF$
Output Capacitance	$C_{oss}$			18		
Reverse Transfer Capacitance	$C_{rss}$			10		
Turn-On Delay Time <sup>2</sup>	$t_{d(on)}$	$V_{DD} = -10V, I_D \cong -450mA$ $, V_{GS} = -4.5V, R_{GEN} = 5.1\Omega$		17		$nS$
Rise Time <sup>2</sup>	$t_r$			30		
Turn-Off Delay Time <sup>2</sup>	$t_{d(off)}$			76		
Fall Time <sup>2</sup>	$t_f$			46		
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (<math>T_J = 25^\circ C</math>)</b>						
Continuous Current	$I_S$				-0.2	A
Forward Voltage <sup>1</sup>	$V_{SD}$	$I_F = -450mA, V_{GS} = 0V$			-1.2	V
Reverse Recovery Time	$t_{rr}$	$I_F = -1A, di/dt = 100 A/\mu s$		46		nS
Reverse Recovery Charge	$Q_{rr}$			28		nC

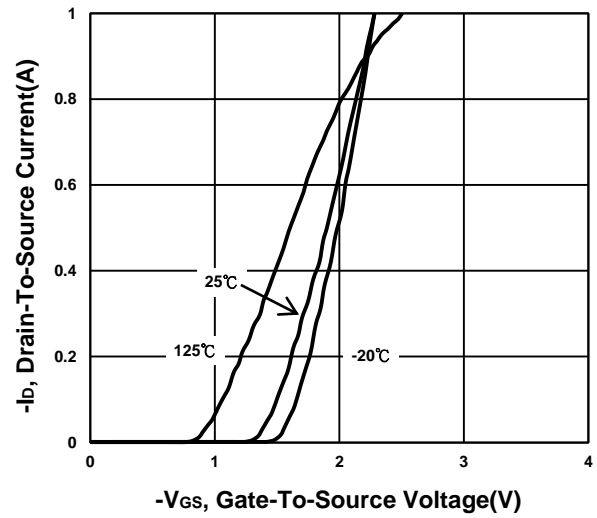
<sup>1</sup>Pulse test : Pulse Width  $\leq 300 \mu sec$ , Duty Cycle  $\leq 2\%$ .

<sup>2</sup>Independent of operating temperature.

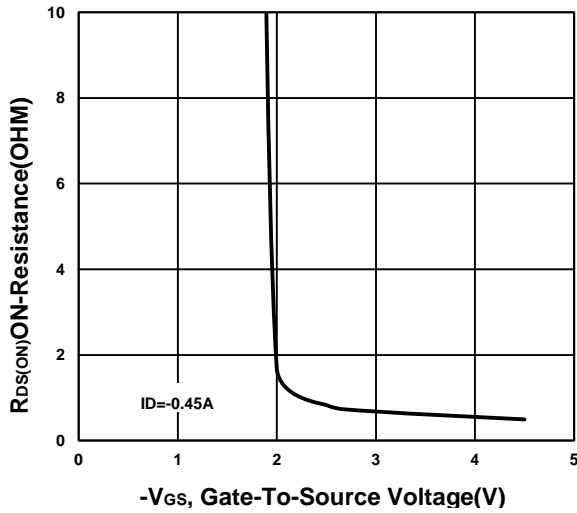
**Output Characteristics**



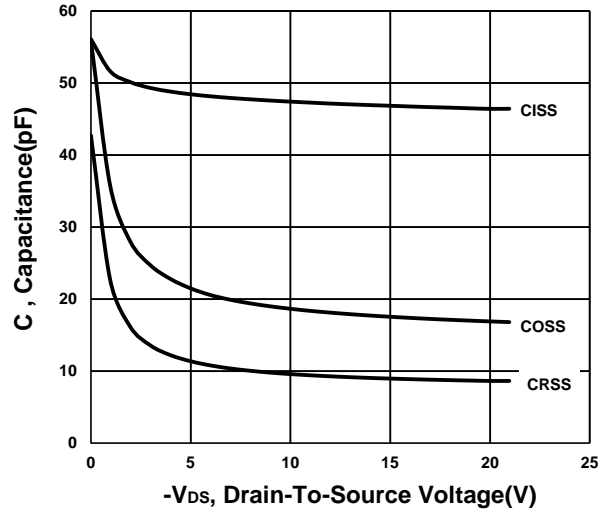
**Transfer Characteristics**



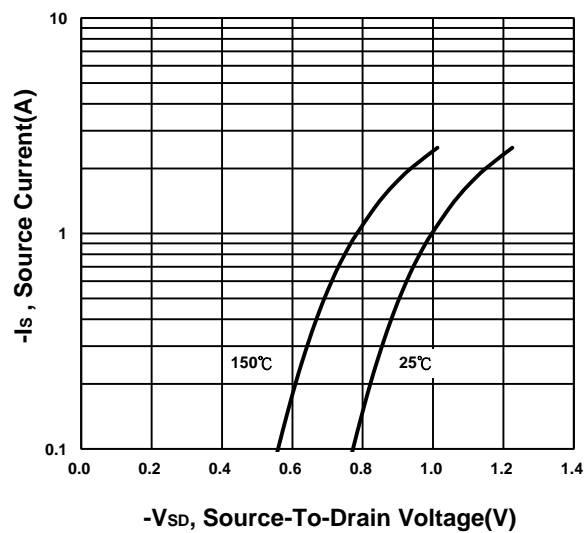
**On-Resistance VS Gate-To-Source**



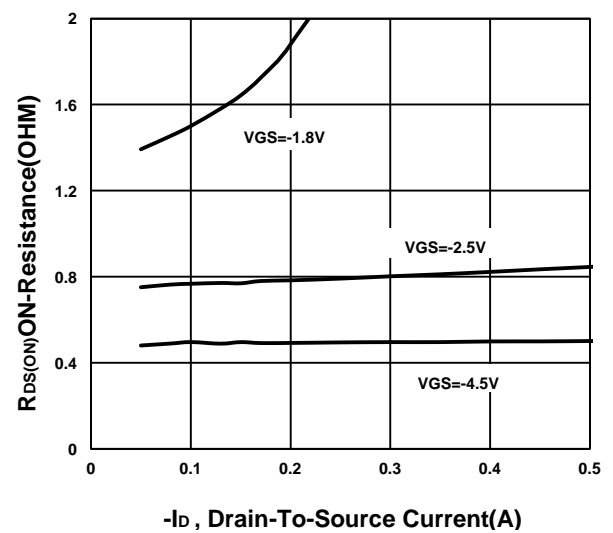
**Capacitance Characteristic**



**Source-Drain Diode Forward Voltage**



**On-Resistance VS Drain Current**



**On-Resistance VS Temperature**

