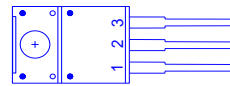
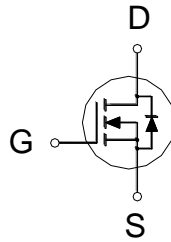




**PRODUCT SUMMARY**

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
650V	786mΩ	8A



- 1. GATE
- 2. DRAIN
- 3. SOURCE

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		$V_{DS}$	650	V
Gate-Source Voltage		$V_{GS}$	$\pm 30$	V
Continuous Drain Current <sup>2</sup>	$T_C = 25\text{ }^\circ\text{C}$	$I_D$	8	A
	$T_C = 100\text{ }^\circ\text{C}$		5	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	26	
Avalanche Current <sup>3</sup>		$I_{AS}$	6.9	A
Avalanche Energy <sup>3</sup>		$E_{AS}$	238	mJ
Power Dissipation	$T_C = 25\text{ }^\circ\text{C}$	$P_D$	46	W
	$T_C = 100\text{ }^\circ\text{C}$		18.5	
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-Case	$R_{\theta JC}$		2.7	$^\circ\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		62.5	$^\circ\text{C} / \text{W}$

<sup>1</sup>Pulse width limited by maximum junction temperature.

<sup>2</sup>Ensure that the channel temperature does not exceed 150 $^\circ\text{C}$ .

<sup>3</sup> $V_{DD} = 50\text{V}$ ,  $L = 10\text{mH}$ , starting  $T_J = 25\text{ }^\circ\text{C}$ .

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

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$	650			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	2	3	4	
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\text{V}, V_{GS} = \pm 30\text{V}$			$\pm 100$	nA
Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 650\text{V}, V_{GS} = 0\text{V}, T_C = 25\text{ }^\circ\text{C}$			1	$\mu\text{A}$
		$V_{DS} = 520\text{V}, V_{GS} = 0\text{V}, T_C = 100\text{ }^\circ\text{C}$			10	

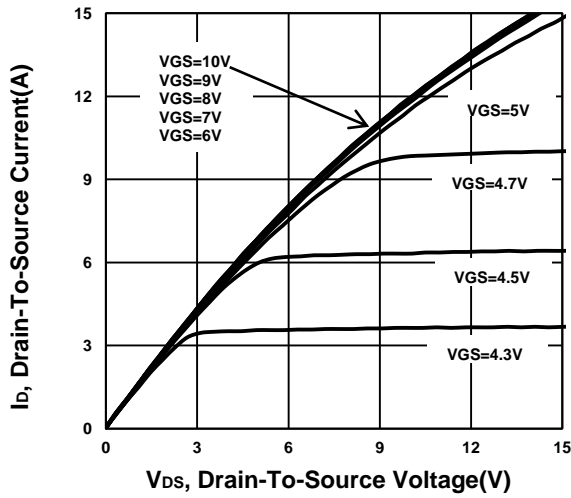
Drain-Source On-State Resistance <sup>1</sup>	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 4A$		629	786	$m\Omega$
Forward Transconductance <sup>1</sup>	$g_{fs}$	$V_{DS} = 10V, I_D = 4A$		12		S
<b>DYNAMIC</b>						
Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$		1682		pF
Output Capacitance	$C_{oss}$			147		
Reverse Transfer Capacitance	$C_{rss}$			9.7		
Total Gate Charge <sup>2</sup>	$Q_g$	$V_{DD} = 520V, I_D = 8A, V_{GS} = 10V$		39		nC
Gate-Source Charge <sup>2</sup>	$Q_{gs}$			7.3		
Gate-Drain Charge <sup>2</sup>	$Q_{gd}$			11.8		
Turn-On Delay Time <sup>2</sup>	$t_{d(on)}$	$V_{DD} = 325V, I_D = 8A, R_G = 25\Omega,$ $V_{GS} = 10V$		31		nS
Rise Time <sup>2</sup>	$t_r$			35		
Turn-Off Delay Time <sup>2</sup>	$t_{d(off)}$			142		
Fall Time <sup>2</sup>	$t_f$			53		
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (<math>T_J = 25\text{ }^\circ\text{C}</math>)</b>						
Continuous Current <sup>3</sup>	$I_S$				8	A
Forward Voltage <sup>1</sup>	$V_{SD}$	$I_F = 8A, V_{GS} = 0V$			1	V
Reverse Recovery Time	$t_{rr}$	$I_F = 8A, di_F/dt = 100A / \mu S$		369		nS
Reverse Recovery Charge	$Q_{rr}$			2.9		uC

<sup>1</sup>Pulse test : Pulse Width  $\leq 380\ \mu\text{sec}$ , Duty Cycle  $\leq 2\%$ .

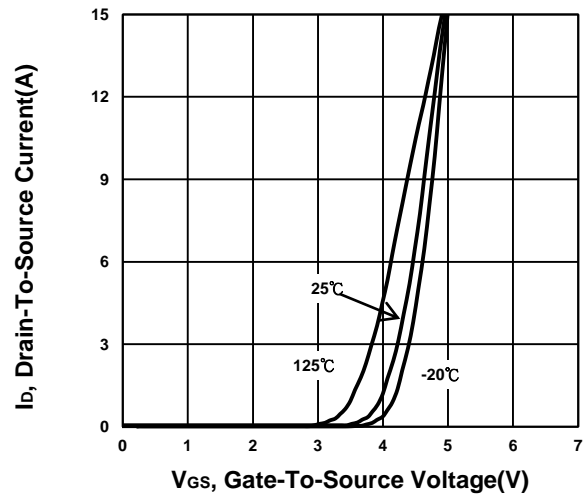
<sup>2</sup>Independent of operating temperature.

<sup>3</sup>Pulse width limited by maximum junction temperature.

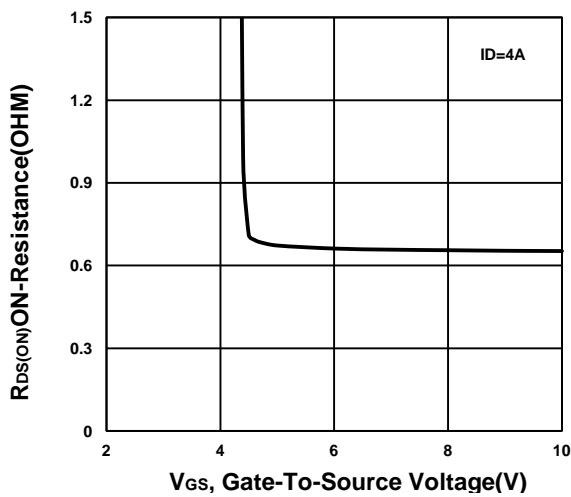
**Output Characteristics**



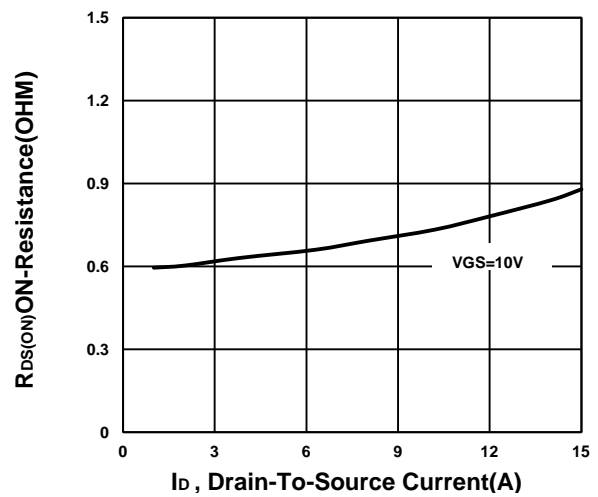
**Transfer Characteristics**



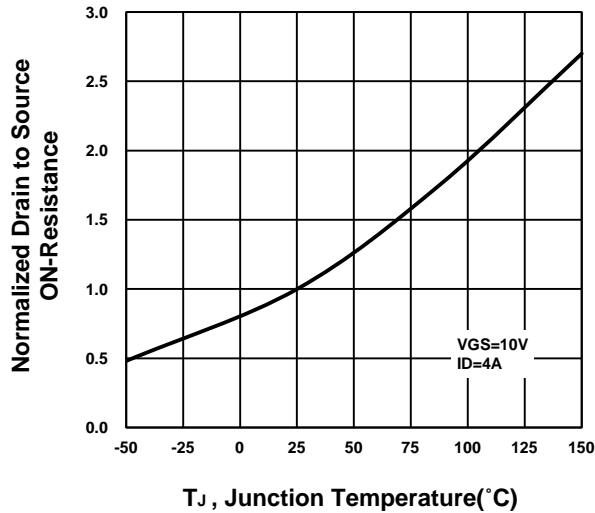
**On-Resistance VS Gate-To-Source Voltage**



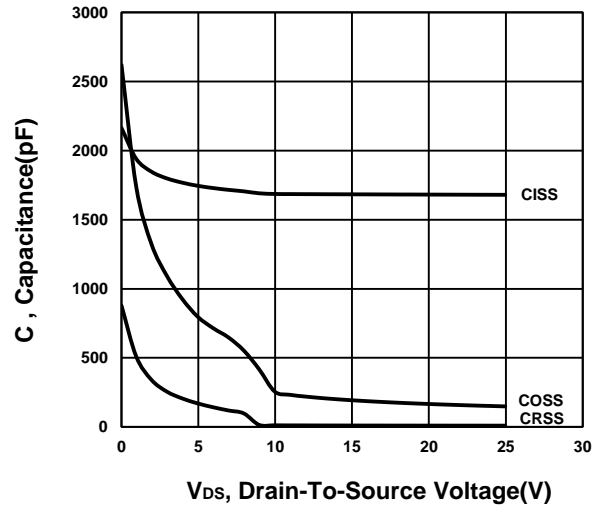
**On-Resistance VS Drain Current**



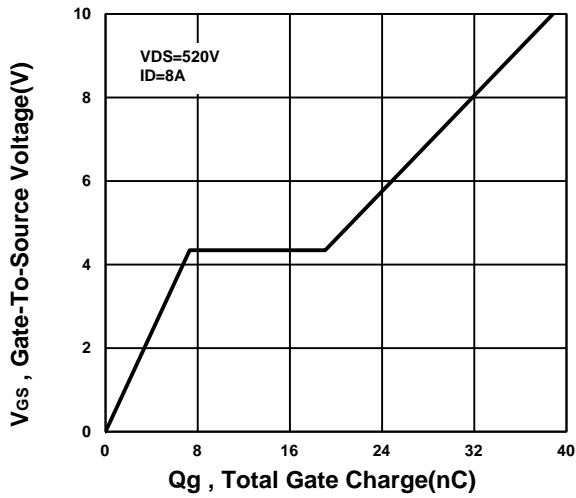
**On-Resistance VS Temperature**



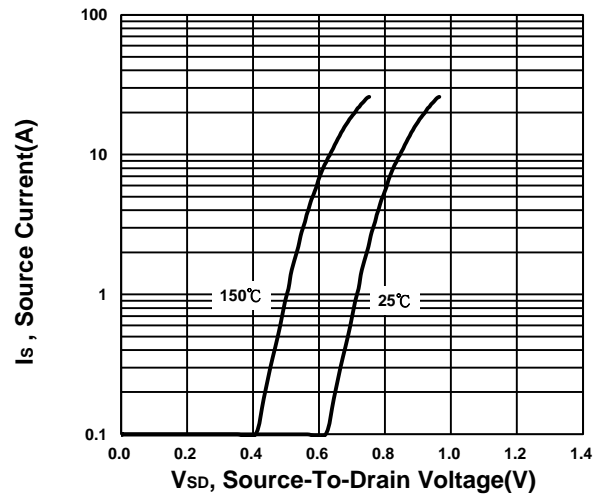
**Capacitance Characteristic**



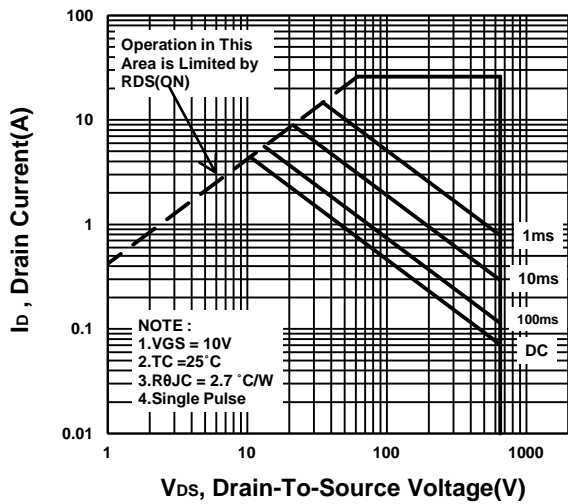
**Gate charge Characteristics**



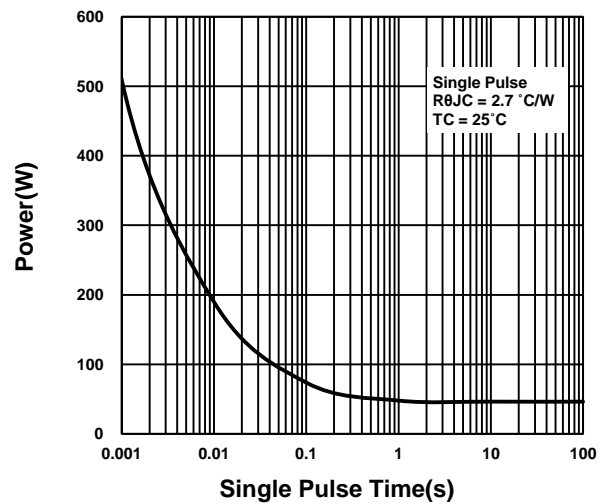
**Source-Drain Diode Forward Voltage**



**Safe Operating Area**



**Single Pulse Maximum Power Dissipation**



**Transient Thermal Response Curve**

