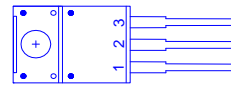
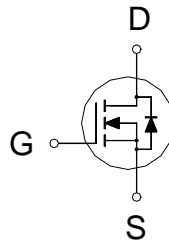




**PRODUCT SUMMARY**

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
600V	190mΩ	20A



1. GATE
2. DRAIN
3. SOURCE

**ABSOLUTE MAXIMUM RATINGS(T<sub>A</sub>=25 °C Unless Otherwise Noted)**

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		$V_{DS}$	600	V
Gate-Source Voltage		$V_{GS}$	±30	V
Continuous Drain Current <sup>2</sup>	$T_C = 25\text{ °C}$	$I_D$	20	A
	$T_C = 100\text{ °C}$		12	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	59	
Avalanche Current <sup>3</sup>		$I_{AS}$	4	A
Avalanche Energy <sup>3</sup>		$E_{AS}$	320	mJ
Power Dissipation	$T_C = 25\text{ °C}$	$P_D$	41	W
	$T_C = 100\text{ °C}$		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-Case	$R_{\theta JC}$		3	°C / W
Junction-to-Ambient	$R_{\theta JA}$		62.5	°C / W

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

<sup>2</sup>Ensure that the channel temperature does not exceed 150°C.

<sup>3</sup> $V_{DD} = 50V$  ,  $L = 40mH$  ,starting  $T_j = 25\text{ °C}$ .

**ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25 °C, Unless Otherwise Noted)**

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	600			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2	3.4	4	
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 30V$			±100	nA
Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 600V, V_{GS} = 0V, T_C = 25\text{ °C}$			1	μA
		$V_{DS} = 480V, V_{GS} = 0V, T_C = 100\text{ °C}$			100	

Drain-Source On-State Resistance <sup>1</sup>	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 10A$		140	190	$m\Omega$
Forward Transconductance <sup>1</sup>	$g_{fs}$	$V_{DS} = 10V, I_D = 10A$		18		S
<b>DYNAMIC</b>						
Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = 100V, f = 250KHz$		1520		pF
Output Capacitance	$C_{oss}$			80		
Reverse Transfer Capacitance	$C_{rss}$			7		
Effective Output Capacitance <sup>4</sup>	$C_{o(er)}$	$V_{GS} = 0V, V_{DS} = 0 \text{ to } 480V$		60		
Total Gate Charge <sup>2</sup>	$Q_g$	$V_{DD} = 480V, I_D = 10A, V_{GS} = 10V$		40.7		nC
Gate-Source Charge <sup>2</sup>	$Q_{gs}$			8.5		
Gate-Drain Charge <sup>2</sup>	$Q_{gd}$			16.3		
Turn-On Delay Time <sup>2</sup>	$t_{d(on)}$	$V_{DD} = 300V, I_D = 10A, R_G = 10\Omega$		31		nS
Rise Time <sup>2</sup>	$t_r$			87		
Turn-Off Delay Time <sup>2</sup>	$t_{d(off)}$			101		
Fall Time <sup>2</sup>	$t_f$			50		
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (<math>T_J = 25^\circ C</math>)</b>						
Continuous Current <sup>3</sup>	$I_S$				20	A
Forward Voltage <sup>1</sup>	$V_{SD}$	$I_F = 10A, V_{GS} = 0V$			1.5	V
Reverse Recovery Time	$t_{rr}$	$I_F = 10A, dI_F/dt = 100A / \mu S$		311		nS
Reverse Recovery Charge	$Q_{rr}$			4		uC

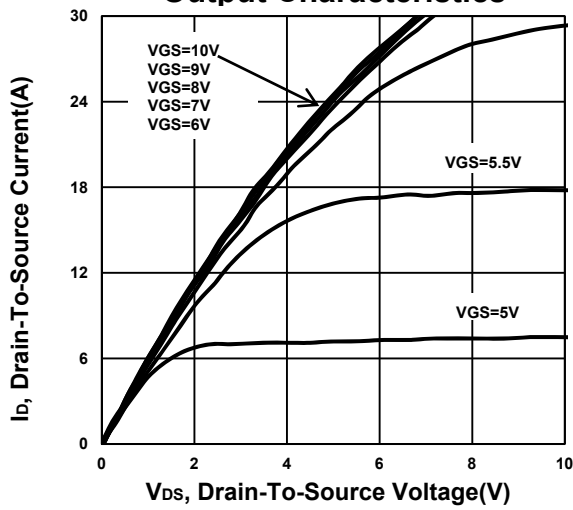
<sup>1</sup>Pulse test : Pulse Width  $\leq 380 \mu sec$ , Duty Cycle  $\leq 2\%$ .

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

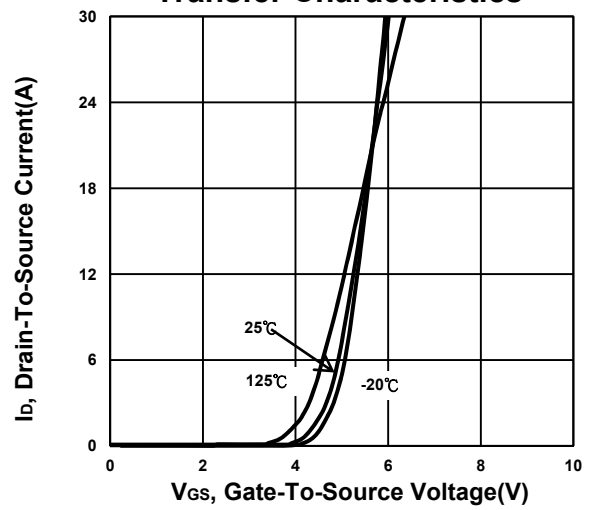
<sup>3</sup>Pulse width limited by maximum junction temperature.

<sup>4</sup> $C_{o(er)}$  is a fixed capacitance that gives the same stored energy as  $C_{oss}$  while  $V_{DS}$  is rising from 0 to 80%  $V_{(BR)DSS}$ .

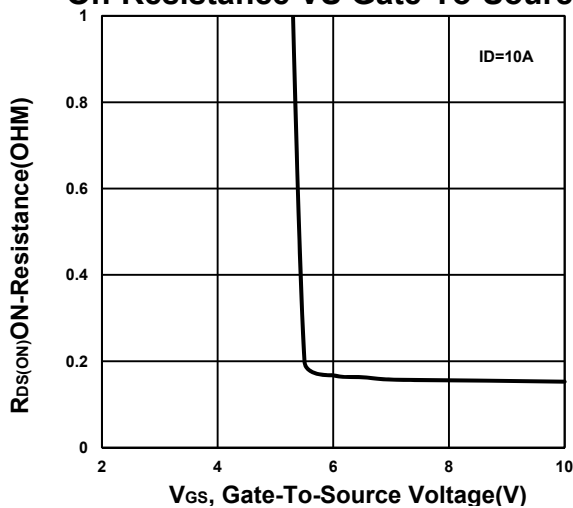
**Output Characteristics**



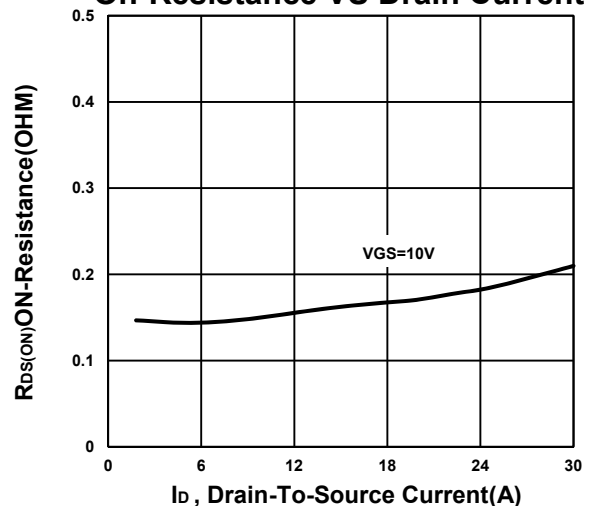
**Transfer Characteristics**



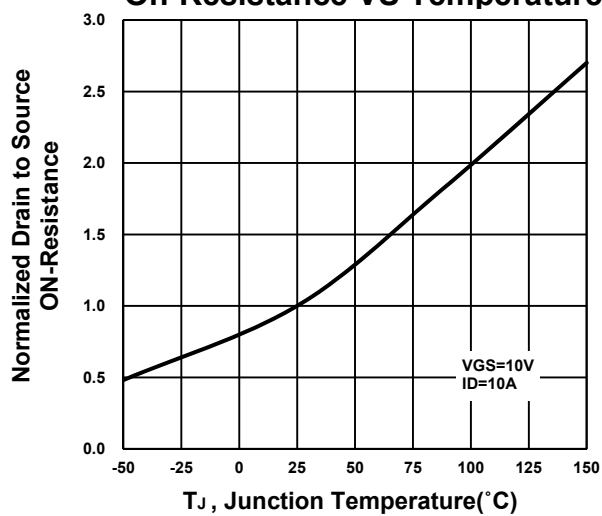
**On-Resistance VS Gate-To-Source**



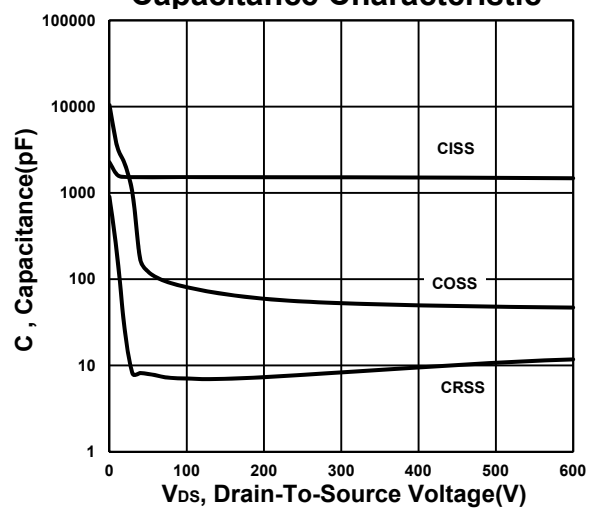
**On-Resistance VS Drain Current**



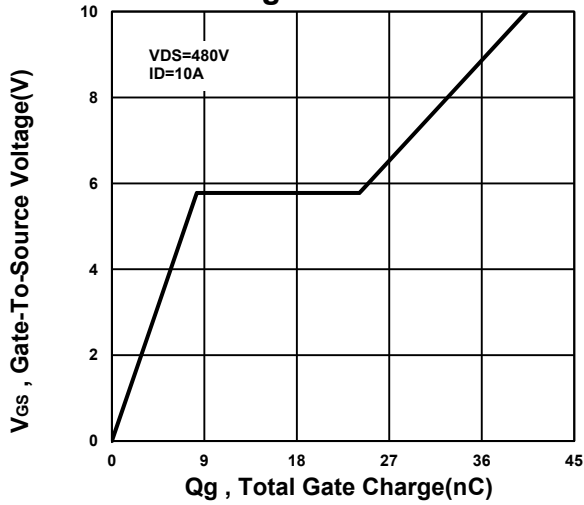
**On-Resistance VS Temperature**



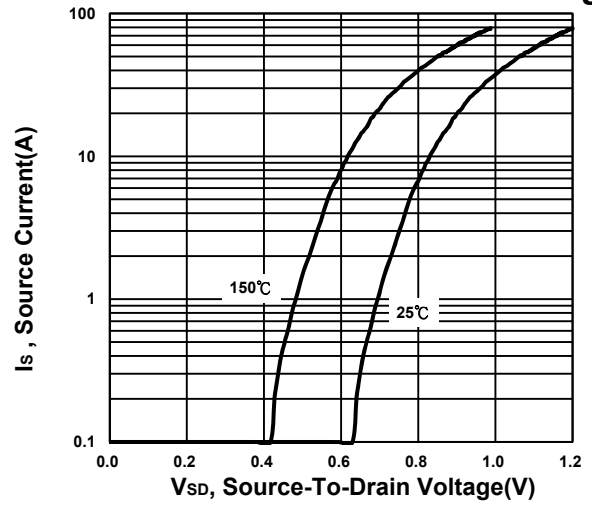
**Capacitance Characteristic**



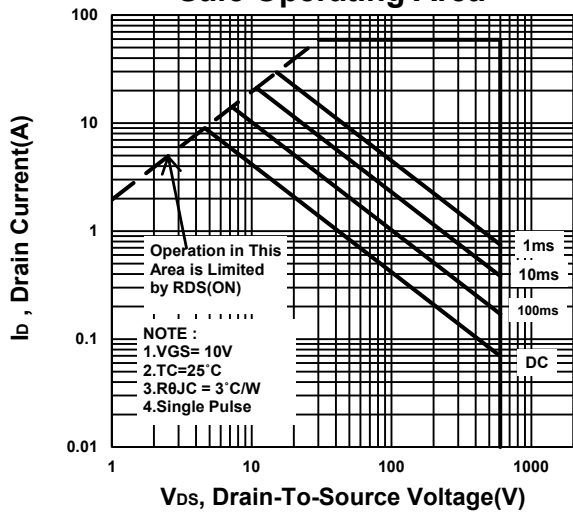
**Gate charge Characteristics**



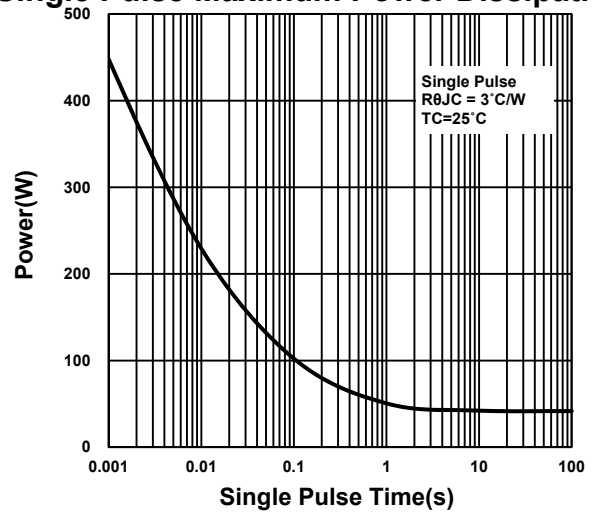
**Source-Drain Diode Forward Voltage**



**Safe Operating Area**



**Single Pulse Maximum Power Dissipation**



**Transient Thermal Response Curve**

