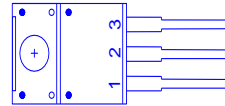
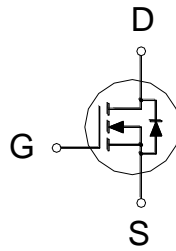




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
500V	705m Ω	10A



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

100% UIS tested

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	500	V
Gate-Source Voltage		V_{GS}	± 30	V
Continuous Drain Current ^{2,4}	$T_C = 25\text{ }^\circ\text{C}$	I_D	10	A
	$T_C = 100\text{ }^\circ\text{C}$		6.3	
Pulsed Drain Current ^{1, 2}		I_{DM}	30	
Avalanche Current ³		I_{AS}	5.9	A
Avalanche Energy ³		E_{AS}	174	mJ
Power Dissipation	$T_C = 25\text{ }^\circ\text{C}$	P_D	48	W
	$T_C = 100\text{ }^\circ\text{C}$		19	
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	$R_{\theta JC}$		2.6	$^\circ\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		62.5	$^\circ\text{C} / \text{W}$

¹Pulse width limited by maximum junction temperature.

²Limited only by maximum temperature allowed.

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

⁴This characteristics assumes the die are assembled in TO-220 packages.

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	$V_{(BR)DSS}$	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$	500			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}	$V_{DS} = 0\text{V}, V_{GS} = \pm 30\text{V}$			± 100	nA

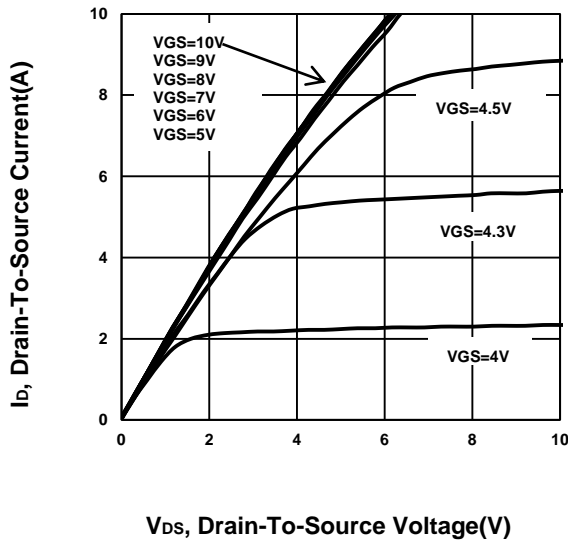
Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 500V, V_{GS} = 0V, T_C = 25\text{ }^\circ\text{C}$			1	μA
		$V_{DS} = 400V, V_{GS} = 0V, T_C = 100\text{ }^\circ\text{C}$			100	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 5A$		513	705	$\text{m}\Omega$
Forward Transconductance ¹	g_{fs}	$V_{DS} = 10V, I_D = 5A$		13		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 25V, f = 1\text{MHz}$		1110		pF
Output Capacitance	C_{oss}			130		
Reverse Transfer Capacitance	C_{rss}			15.6		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1\text{MHz}$		2.3		Ω
Total Gate Charge ²	Q_g	$V_{DD} = 400V, I_D = 10A, V_{GS} = 10V$		31		nC
Gate-Source Charge ²	Q_{gs}			5		
Gate-Drain Charge ²	Q_{gd}			11		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DD} = 250V, I_D = 10A, R_G = 25\Omega$		24		nS
Rise Time ²	t_r			44		
Turn-Off Delay Time ²	$t_{d(off)}$			123		
Fall Time ²	t_f			61		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25\text{ }^\circ\text{C}$)						
Continuous Current ³	I_S				10	A
Forward Voltage ¹	V_{SD}	$I_F = 10A, V_{GS} = 0V$			1	V
Reverse Recovery Time	t_{rr}	$I_F = 10A, di_F/dt = 100A / \mu\text{S}$		382		nS
Reverse Recovery Charge	Q_{rr}			3.3		μC

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

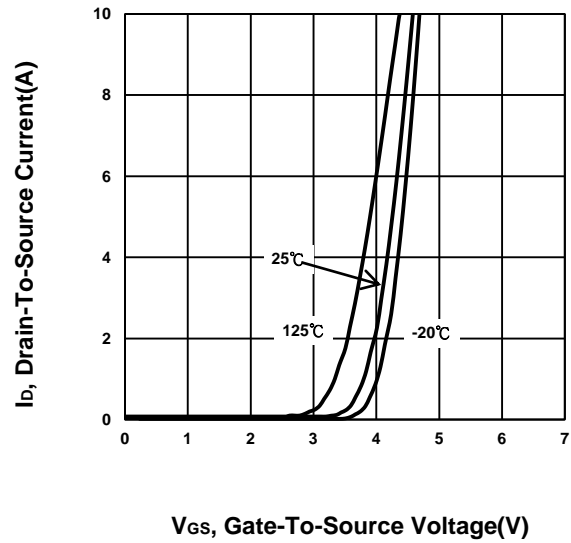
²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.

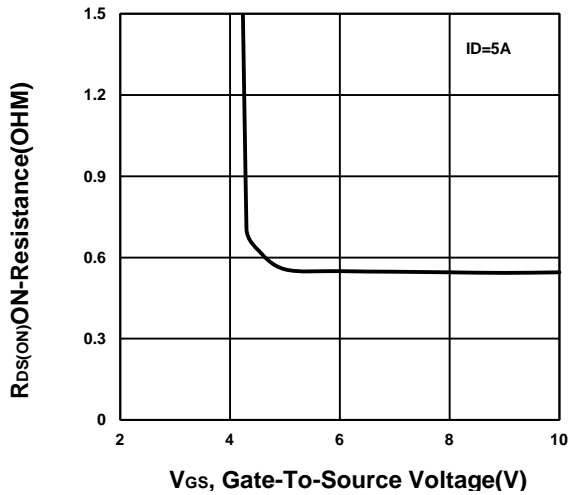
Output Characteristics



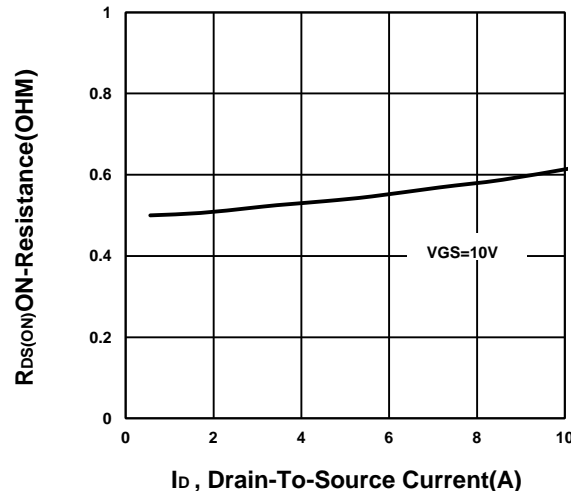
Transfer Characteristics



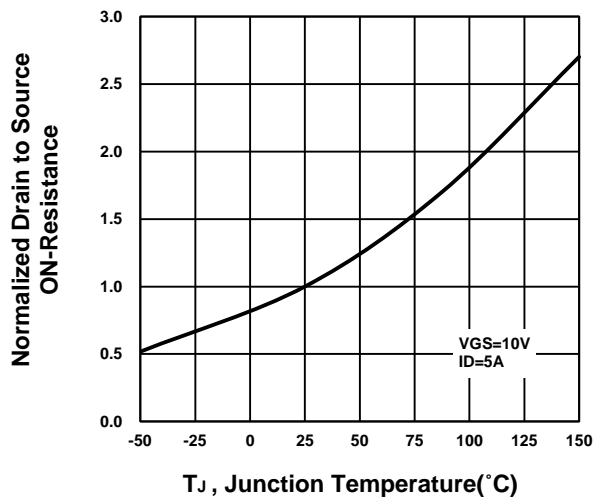
On-Resistance VS Gate-To-Source Voltage



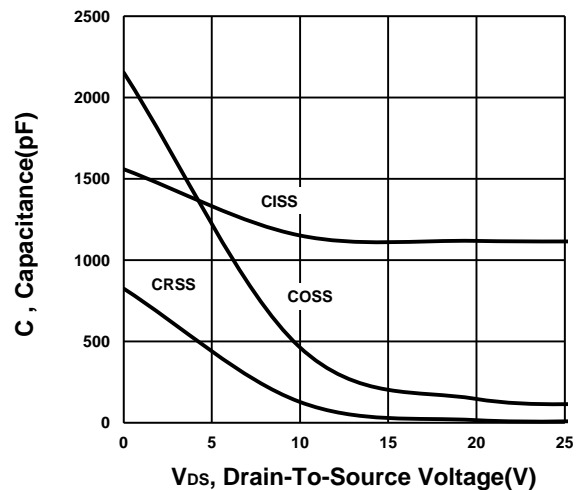
On-Resistance VS Drain Current



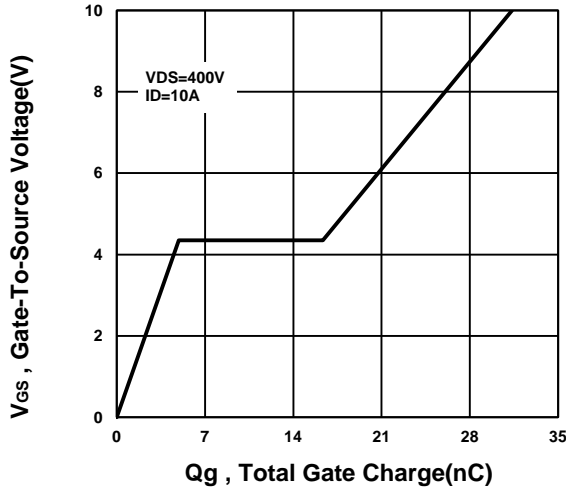
On-Resistance VS Temperature



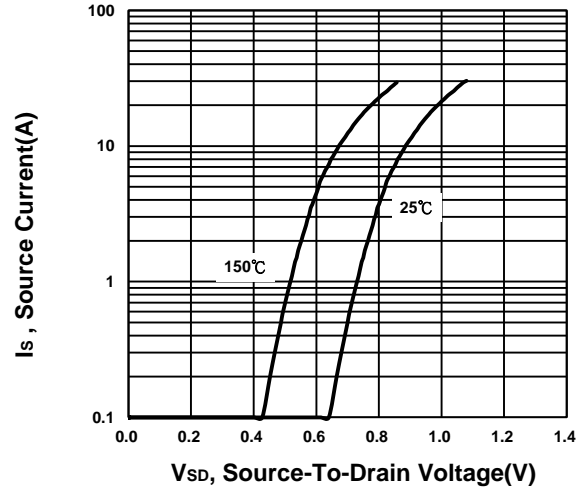
Capacitance Characteristic



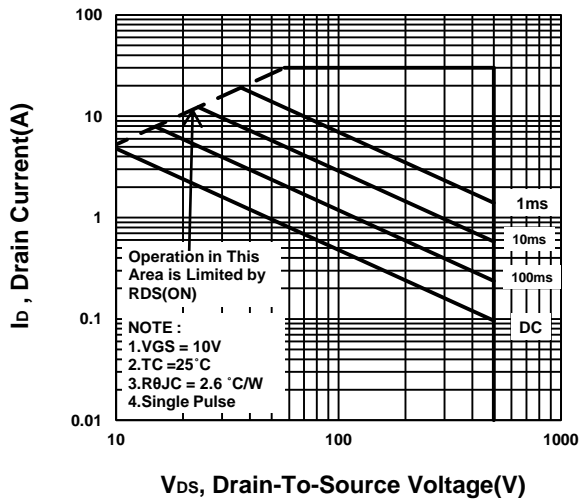
Gate charge Characteristics



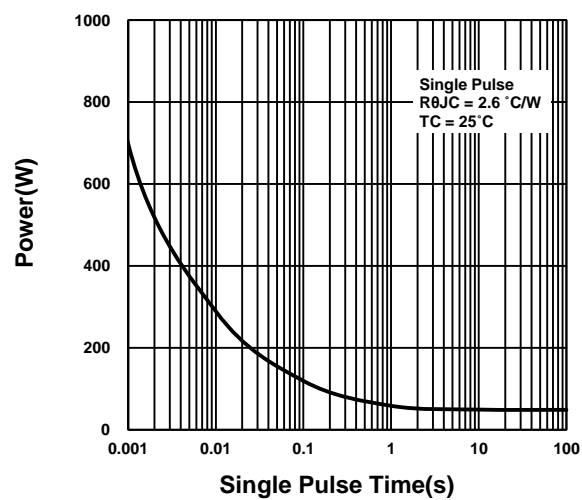
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

