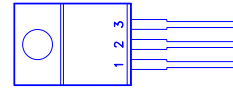
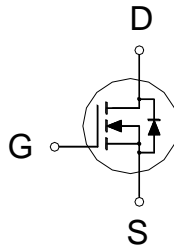




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
40V	2.7mΩ	166A



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

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	40	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current ²	$T_C = 25\text{ °C}$	I_D	166	A
	$T_C = 100\text{ °C}$		105	
Pulsed Drain Current ¹		I_{DM}	300	
Avalanche Current		I_{AS}	69	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	235	mJ
Power Dissipation	$T_C = 25\text{ °C}$	P_D	125	W
	$T_C = 100\text{ °C}$		50	
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	$R_{\theta JC}$		1	°C / W
Junction-to-Ambient	$R_{\theta JA}$		62.5	

¹Pulse width limited by maximum junction temperature.

²Package limitation current is 85A.

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

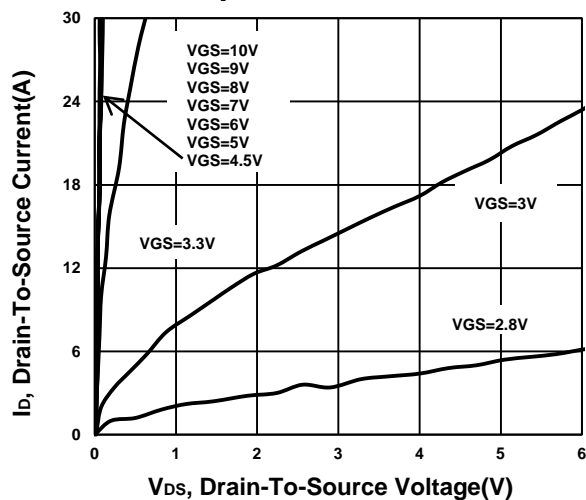
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	40			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.3	1.8	2.3	V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 32V, V_{GS} = 0V$			1	μA
		$V_{DS} = 30V, V_{GS} = 0V, T_J = 125\text{ °C}$			10	

Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 16A$	2.4	3.5	mΩ		
		$V_{GS} = 10V, I_D = 20A$	2	2.7			
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 20A$	96		S		
DYNAMIC							
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 20V, f = 1MHz$	6311		pF		
Output Capacitance	C_{oss}		702				
Reverse Transfer Capacitance	C_{rss}		400				
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$	1.6		Ω		
Total Gate Charge ²	$Q_{g(VGS=10V)}$	$V_{DS} = 20V, I_D = 20A$	118		nC		
	$Q_{g(VGS=4.5V)}$		59				
Gate-Source Charge ²	Q_{gs}		20				
Gate-Drain Charge ²	Q_{gd}		23				
Turn-On Delay Time ²	$t_{d(on)}$		$V_{DD} = 20V,$ $I_D \cong 20A, V_{GS} = 10V, R_{GEN} = 6\Omega$	29			nS
Rise Time ²	t_r			68			
Turn-Off Delay Time ²	$t_{d(off)}$	164					
Fall Time ²	t_f	121					
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)							
Continuous Current	I_S			96	A		
Forward Voltage ¹	V_{SD}	$I_F = 20A, V_{GS} = 0V$		1.3	V		
Reverse Recovery Time	t_{rr}	$I_F = 20A, di/dt = 100A/\mu s$	37		nS		
Reverse Recovery Charge	Q_{rr}		27		nC		

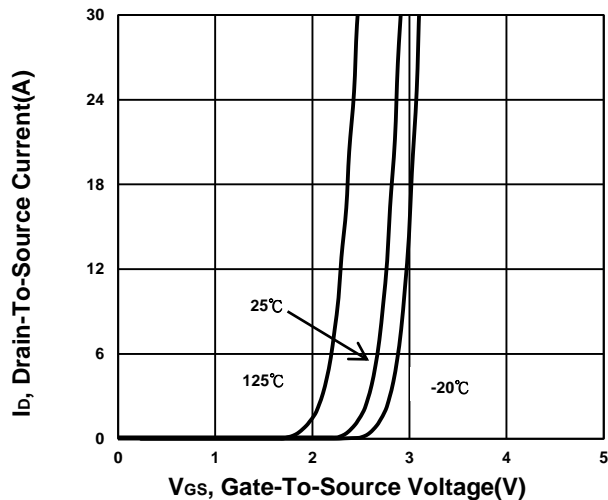
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

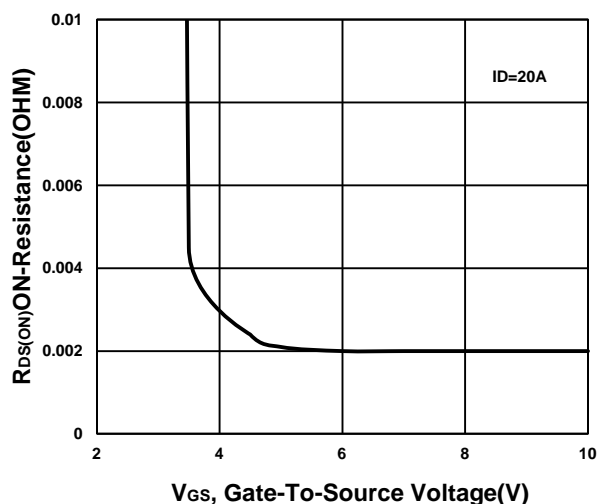
Output Characteristics



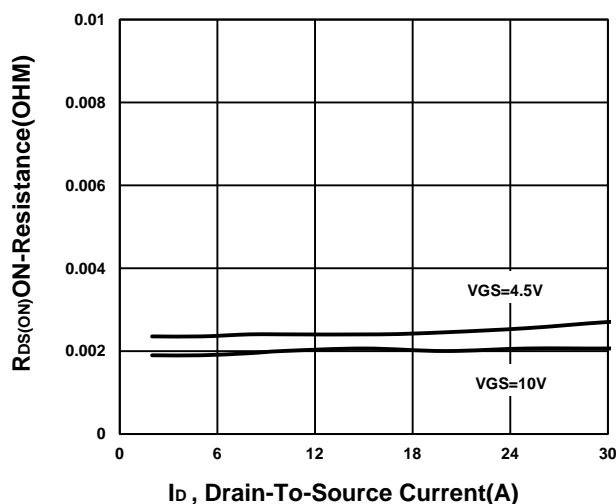
Transfer Characteristics



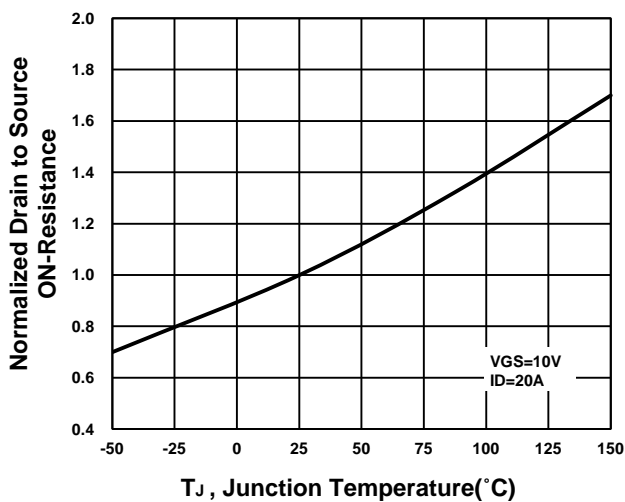
On-Resistance VS Gate-To-Source Voltage



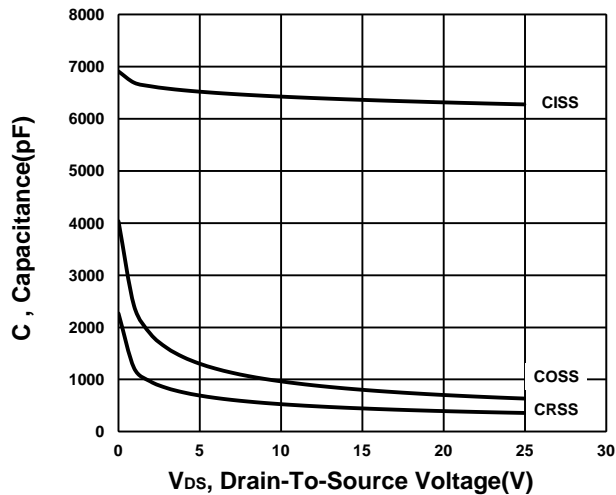
On-Resistance VS Drain Current



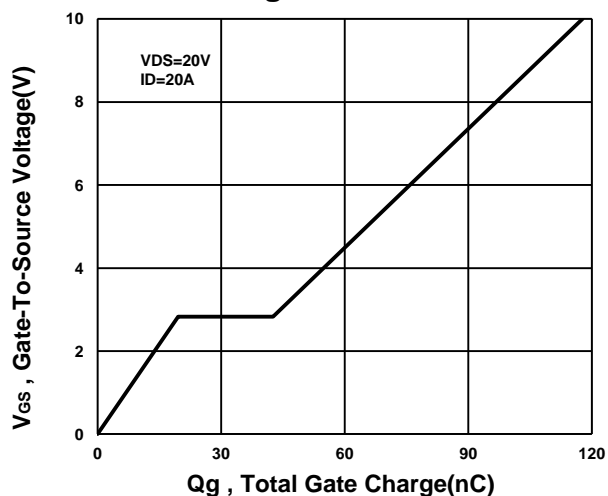
On-Resistance VS Temperature



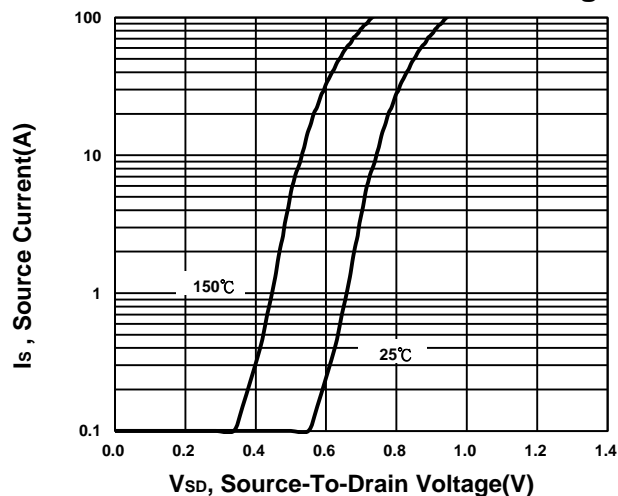
Capacitance Characteristic



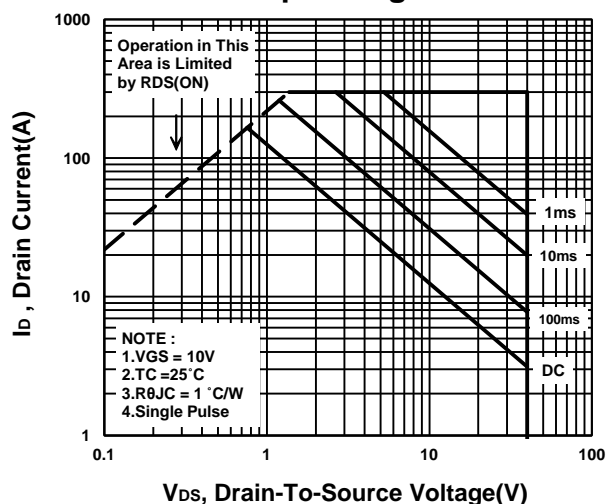
Gate charge Characteristics



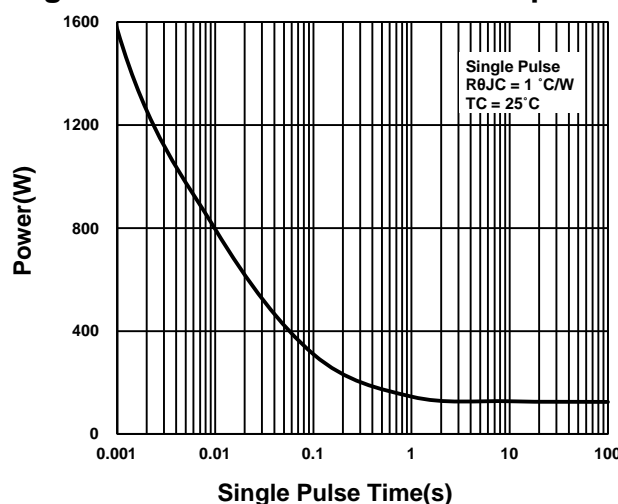
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

