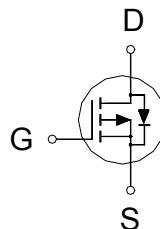




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-40V	8mΩ	-52A

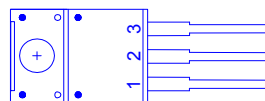


Features

- 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.

Applications

- Protection Circuits Applications.
- Logic/Load Switch Circuits Applications.



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}	-40	V
Gate-Source Voltage		V_{GS}	±25	V
Continuous Drain Current ^{2,3}	$T_C = 25\text{ }^\circ\text{C}$	I_D	-52	A
	$T_C = 100\text{ }^\circ\text{C}$		-33	
Pulsed Drain Current ¹		I_{DM}	-120	
Avalanche Current		I_{AS}	-47	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	110	mJ
Power Dissipation	$T_C = 25\text{ }^\circ\text{C}$	P_D	41	W
	$T_C = 100\text{ }^\circ\text{C}$		16	
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	

¹Pulse width limited by maximum junction temperature.
²Limited only by maximum temperature allowed.
³Package limitation current is -55A.

ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

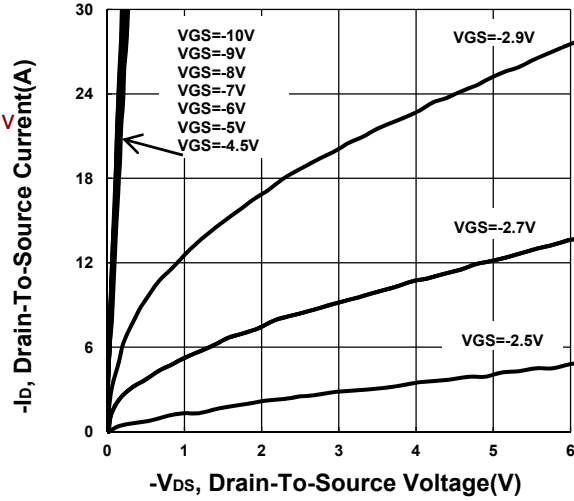
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-40			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1	-1.6	-3	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±25V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -32V, V _{GS} = 0V			-1	μA
		V _{DS} = -30V, V _{GS} = 0V, T _J = 125 °C			-10	
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = -4.5V, I _D = -15A		9.1	14	mΩ
		V _{GS} = -10V, I _D = -20A		6.9	8	
Forward Transconductance ¹	g _{fs}	V _{DS} = -5V, I _D = -20A		62		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -20V, f = 1MHz		3880		pF
Output Capacitance	C _{oss}			505		
Reverse Transfer Capacitance	C _{rss}			401		
Gate resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz		3.3		Ω
Total Gate Charge ²	Q _g	V _{DS} = -20V, V _{GS} = -10V, I _D = -20A		83		nC
Gate-Source Charge ²	Q _{gs}			9.5		
Gate-Drain Charge ²	Q _{gd}			19.8		
Turn-On Delay Time ²	t _{d(on)}	V _{DS} = -20V, I _D ≅ -20A, V _{GS} = -10V, R _{GS} = 6Ω		22		nS
Rise Time ²	t _r			81		
Turn-Off Delay Time ²	t _{d(off)}			165		
Fall Time ²	t _f			151		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I _S				-31	A
Forward Voltage ¹	V _{SD}	I _F = -20A, V _{GS} = 0V			-1.3	V
Reverse Recovery Time	t _{rr}	I _F = -20A, dI _F /dt = 100A / μS		31		nS
Reverse Recovery Charge	Q _{rr}				16	

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

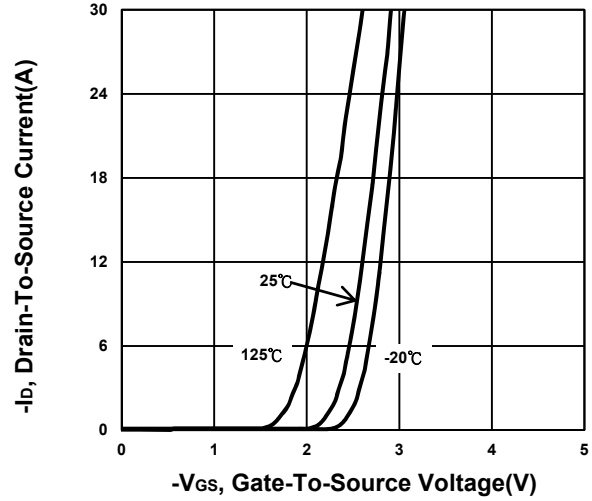
²Independent of operating temperature.

³Package limitation current is -55A.

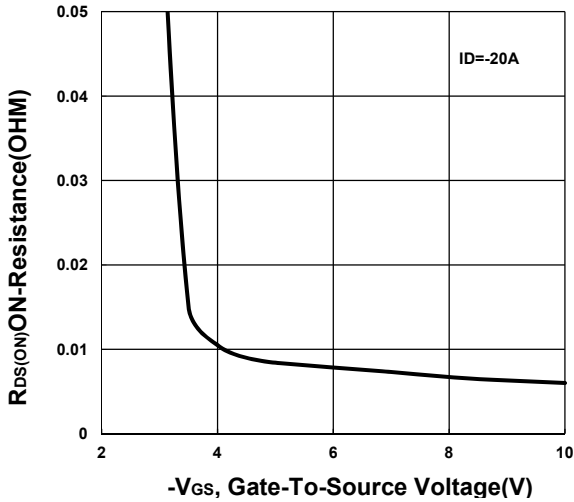
Output Characteristics



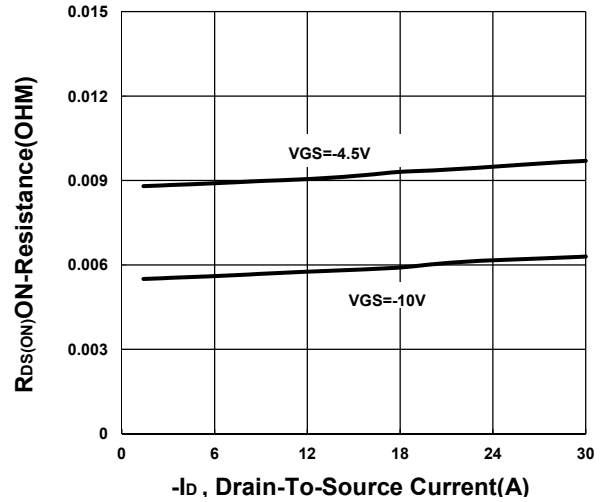
Transfer Characteristics



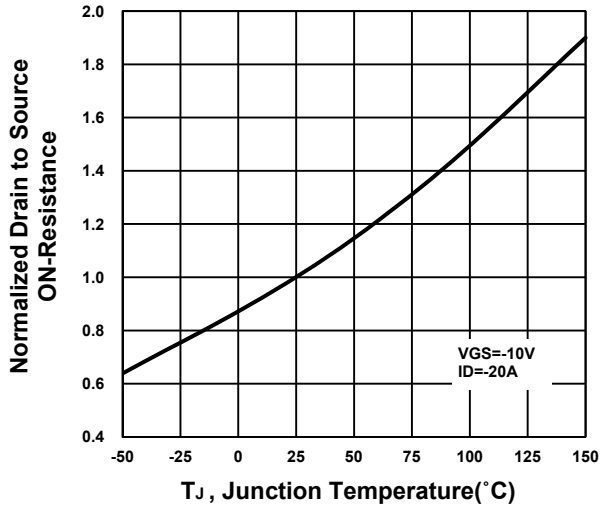
On-Resistance VS Gate-To-Source



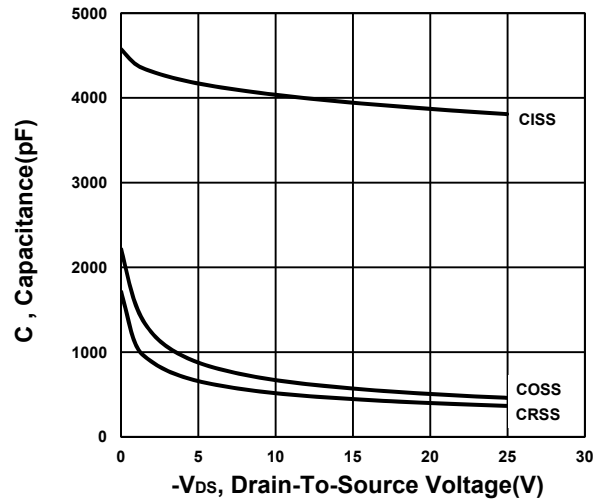
On-Resistance VS Drain Current



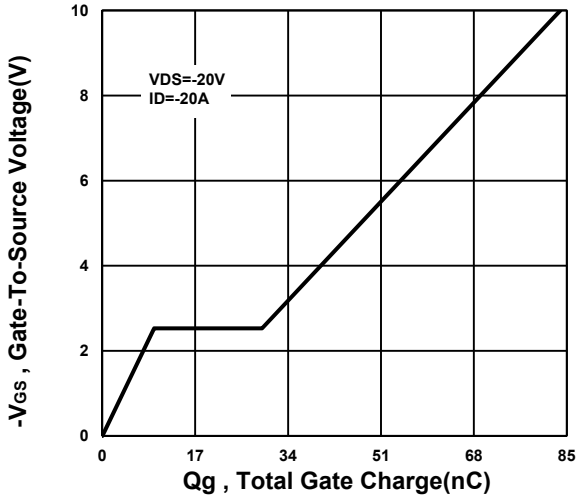
On-Resistance VS Temperature



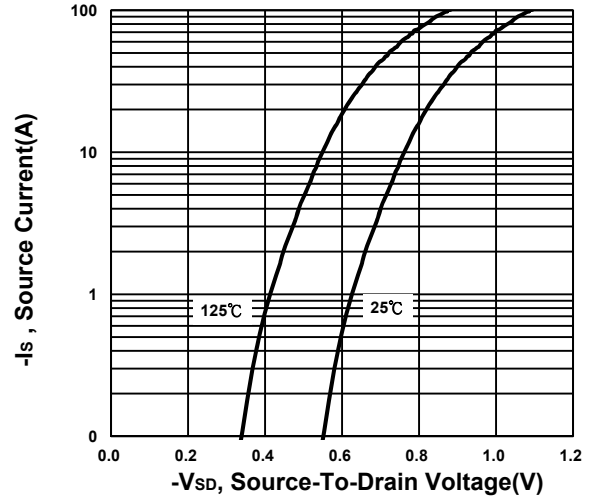
Capacitance Characteristic



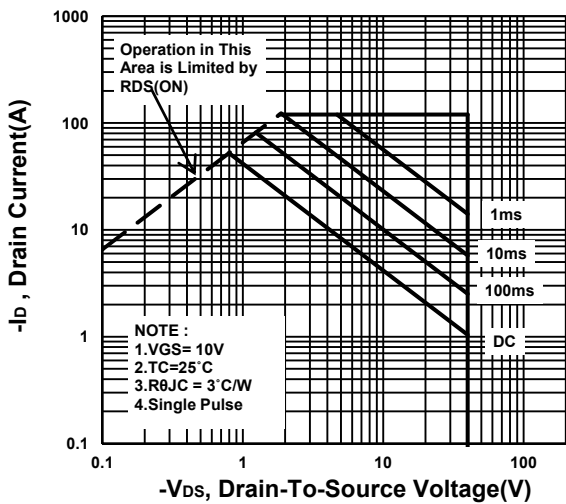
Gate charge Characteristics



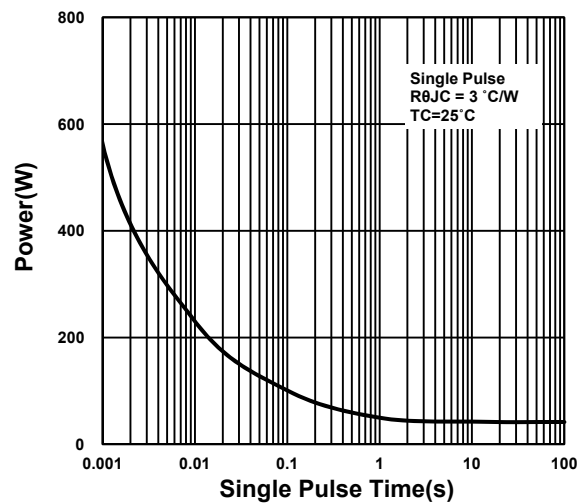
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

