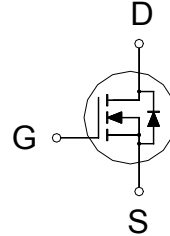




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
40V	4m Ω	112A

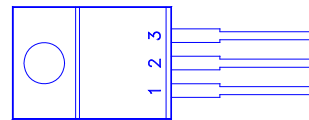


Features

- 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

100% UIS Tested
100% Rg Tested

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current ^{2,3}	$T_C = 25^\circ\text{C}$	I_D	112	A
	$T_C = 100^\circ\text{C}$		71	
Pulsed Drain Current ^{1,2}		I_{DM}	200	
Avalanche Current		I_{AS}	54	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	145	mJ
Power Dissipation	$T_C = 25^\circ\text{C}$	P_D	104	W
	$T_C = 100^\circ\text{C}$		41	
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	$R_{\theta JC}$		1.2	$^\circ\text{C} / \text{W}$
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.

³Package limitation current is 55A.

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

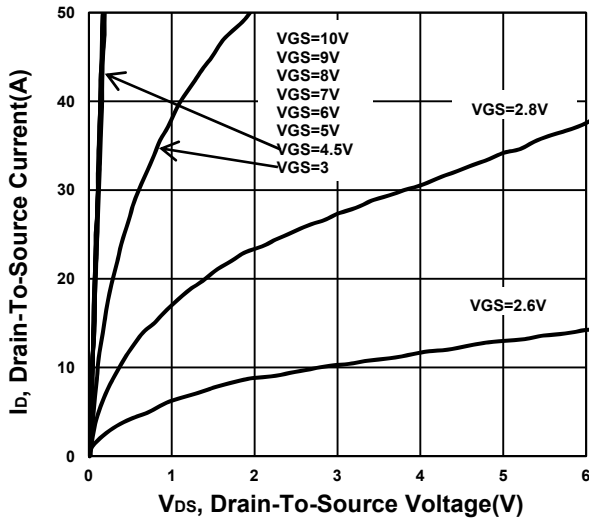
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	40			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.3	1.6	2.3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 32V, V_{GS} = 0V$			1	μA
		$V_{DS} = 30V, V_{GS} = 0V, T_J = 125\text{ }^{\circ}C$			10	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 20A$		3.2	4	m Ω
		$V_{GS} = 4.5V, I_D = 15A$		3.6	6.5	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 20A$		95		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 20V, f = 1MHz$		3463		pF
Output Capacitance	C_{oss}			442		
Reverse Transfer Capacitance	C_{rss}			298		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		1.25		Ω
Total Gate Charge ²	$Q_{g(VGS=10V)}$	$V_{DS} = 20V, V_{GS} = 10V, I_D = 20A$		74		nC
	$Q_{g(VGS=4.5V)}$			38		
Gate-Source Charge ²	Q_{gs}			9.3		
Gate-Drain Charge ²	Q_{gd}			17.5		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DD} = 40V$ $I_D \cong 20A, V_{GS} = 10V, R_{GEN} = 6\Omega$		27		nS
Rise Time ²	t_r			22		
Turn-Off Delay Time ²	$t_{d(off)}$			63		
Fall Time ²	t_f			21		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25\text{ }^{\circ}C$)						
Continuous Current ³	I_S				80	A
Forward Voltage ¹	V_{SD}	$I_F = 20A, V_{GS} = 0V$			1.3	V
Reverse Recovery Time	t_{rr}	$I_F = 20A, dI_F/dt = 100A / \mu S$		28.6		nS
Reverse Recovery Charge	Q_{rr}			17		nC

¹Pulse test : Pulse Width $\leq 300 \mu\text{sec}$, Duty Cycle $\leq 2\%$.

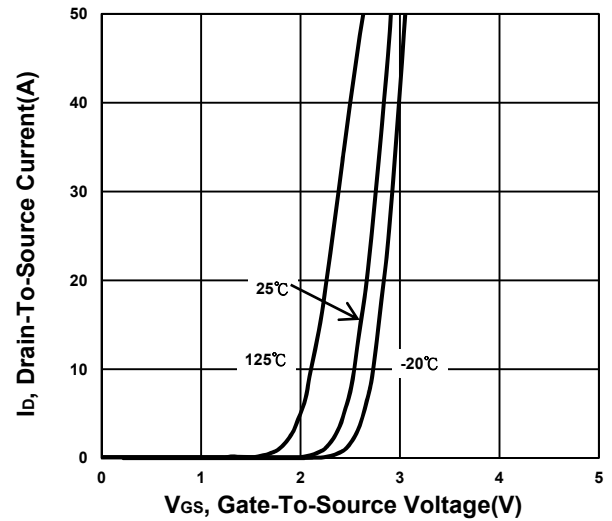
²Independent of operating temperature.

³Package limitation current is 55A.

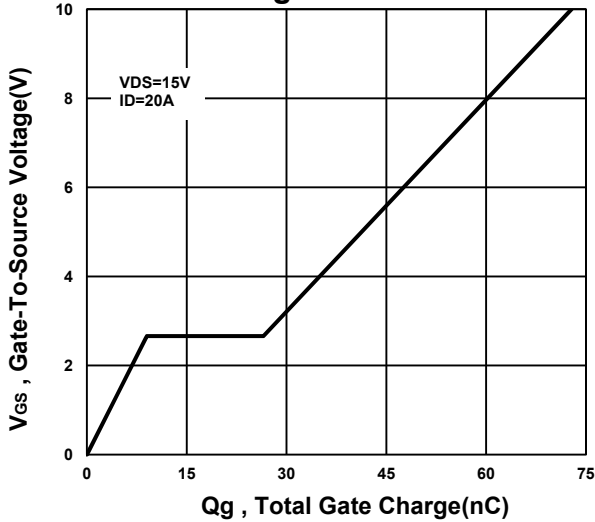
Output Characteristics



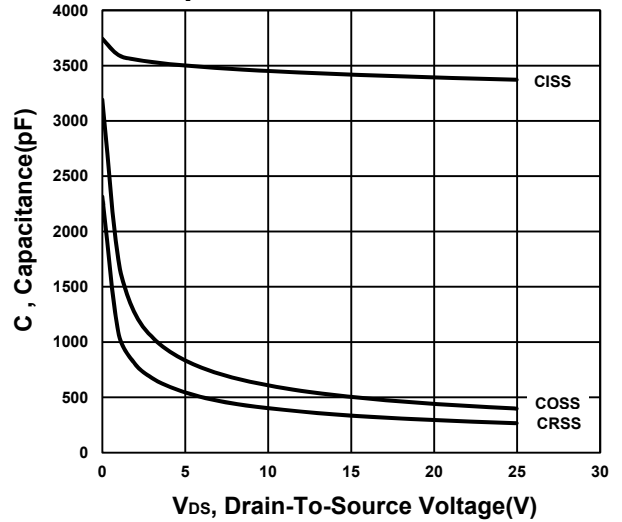
Transfer Characteristics



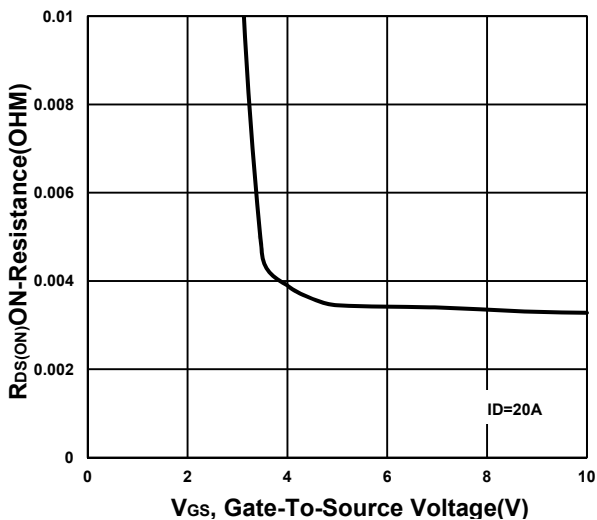
Gate charge Characteristics



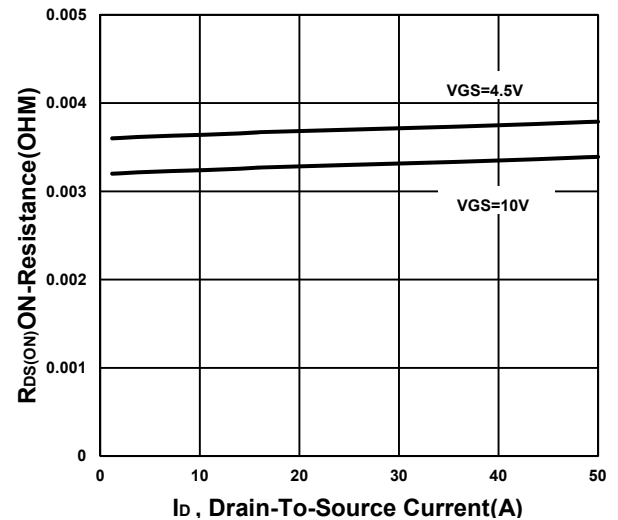
Capacitance Characteristic



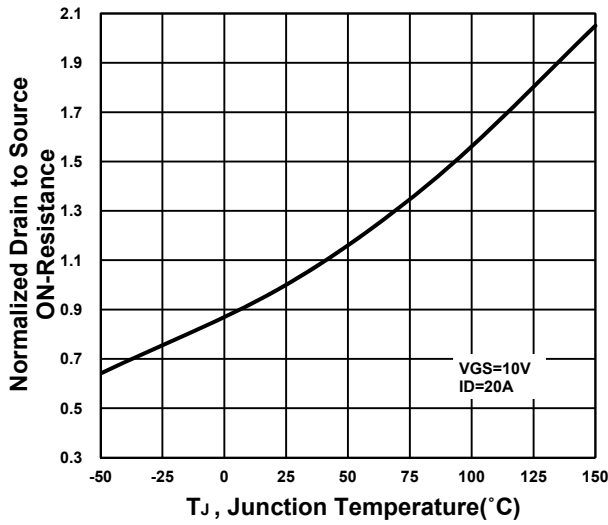
On-Resistance VS Gate-To-Source



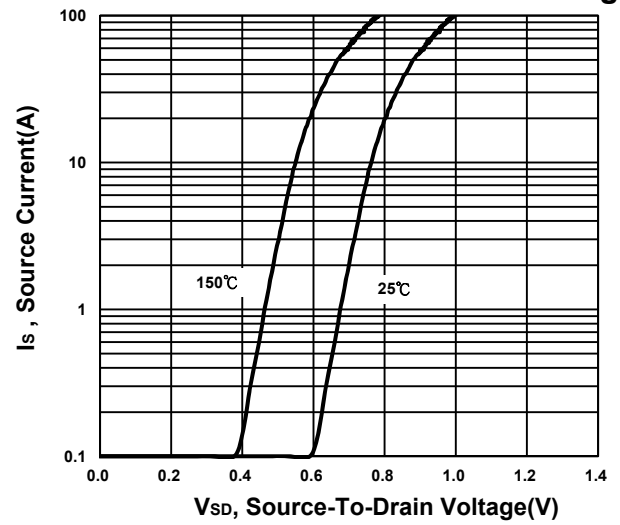
On-Resistance VS Drain Current



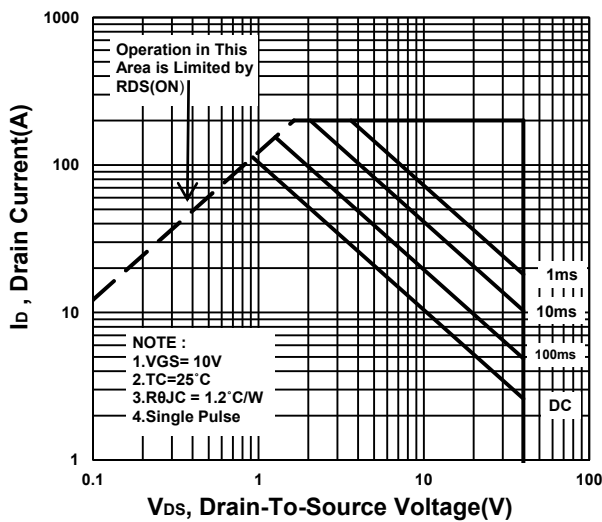
On-Resistance VS Temperature



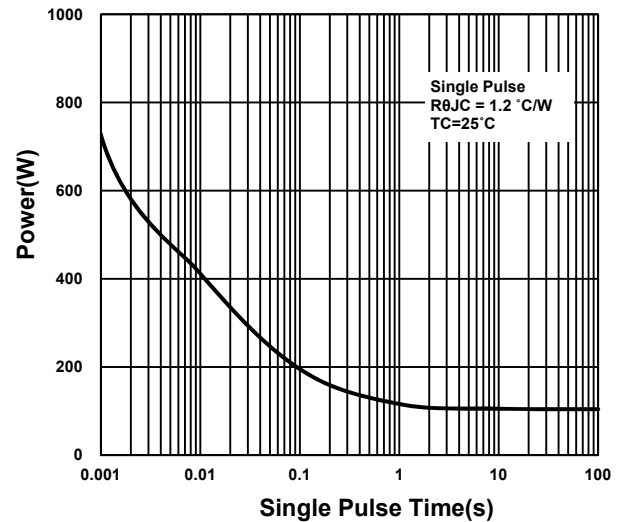
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

