

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-30V	8m Ω	-81A

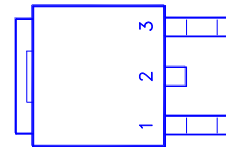
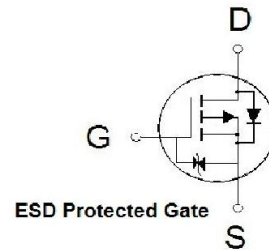


Features

- 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.
- Products Integrated ESD diode with ESD Protected.

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}	-30	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C = 25\text{ }^{\circ}\text{C}$	I_D	-81	A
	$T_C = 100\text{ }^{\circ}\text{C}$		-51	
Pulsed Drain Current ¹		I_{DM}	-240	
Avalanche Current		I_{AS}	-69	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	238	mJ
Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	89	W
	$T_C = 100\text{ }^{\circ}\text{C}$		35	
Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^{\circ}\text{C}$

THERMAL RESISTANCE RATINGS

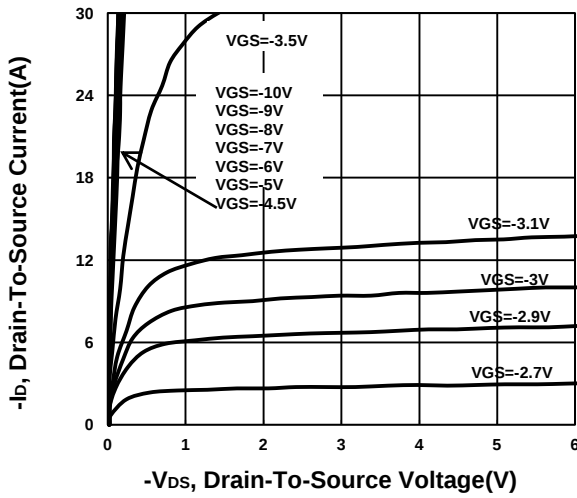
THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		1.4	$^{\circ}\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		62.5	

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

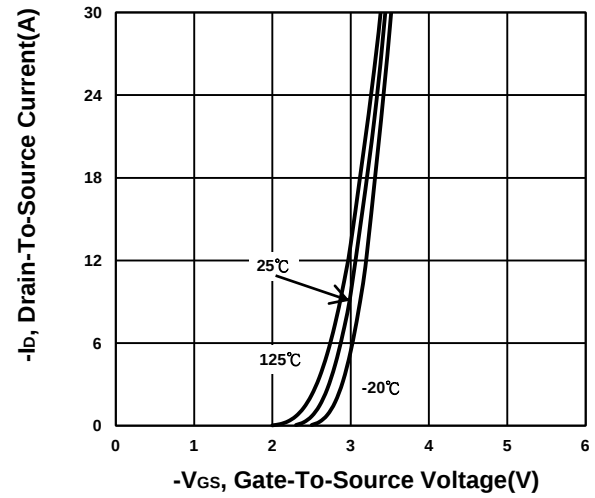
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1.3	-1.84	-2.3	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±10	uA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -30V, V _{GS} = 0V			-1	μA
		V _{DS} = -30V, V _{GS} = 0V, T _J = 125 °C			-10	
Drain-Source On-State Resistance ²	R _{DS(ON)}	V _{GS} = -4.5V, I _D = -20A		9.1	13.8	mΩ
		V _{GS} = -10V, I _D = -20A		5.1	8	
Forward Transconductance ²	g _{fs}	V _{DS} = -5V, I _D = -20A		42		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -15V, f = 1MHz		5370		pF
Output Capacitance	C _{oss}			800		
Reverse Transfer Capacitance	C _{rss}			688		
Gate Resistance	R _g	V _{GS} =0V, V _{DS} = 0V, f = 1MHz		1.9		Ω
Total Gate Charge ³	Q _g (V _{GS} =-10V)	V _{DS} = -15V , V _{GS} = -10V, I _D = -20A		117		nC
	Q _g (V _{GS} =-4.5V)			57		
Gate-Source Charge ³	Q _{gs}			18		
Gate-Drain Charge ³	Q _{gd}			27		
Turn-On Delay Time ³	t _{d(on)}	V _{DS} = -15V , I _D ≅ -20A, V _{GS} = -10V, R _{GEN} =6 Ω		24		nS
Rise Time ³	t _r			92		
Turn-Off Delay Time ³	t _{d(off)}			150		
Fall Time ³	t _f			122		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _J = 25 °C)						
Continuous Current	I _S				-68	A
Forward Voltage ²	V _{SD}	I _F = -20A, V _{GS} = 0V			-1.3	V
Reverse Recovery Time	t _{rr}	I _F = -20A, dI _F /dt = 100A / μS		27		nS
Reverse Recovery Charge	Q _{rr}			22		nC

¹Pulse width limited by maximum junction temperature.²Pulse test : Pulse Width $\leq 300\text{ }\mu\text{sec}$, Duty Cycle $\leq 2\%$.³Independent of operating temperature.

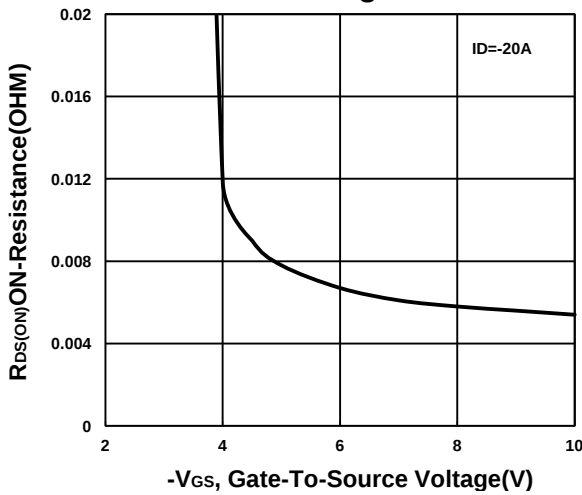
Output Characteristics



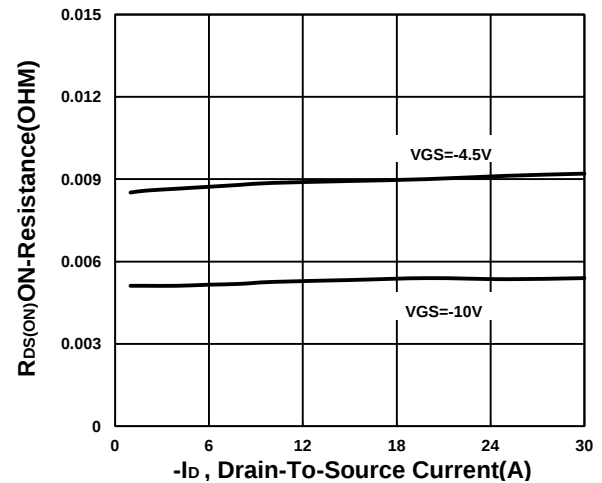
Transfer Characteristics



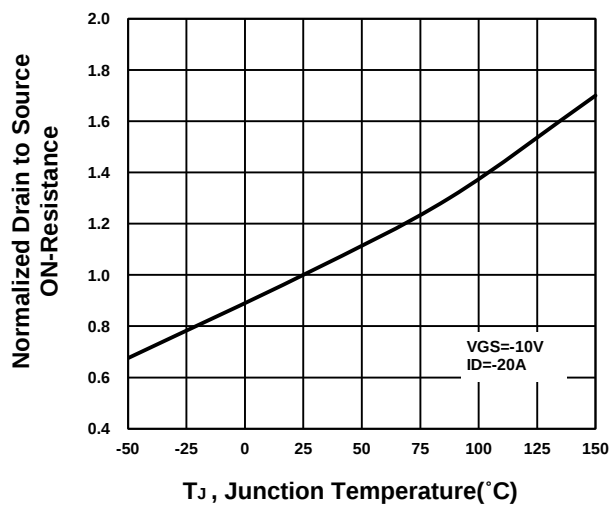
On-Resistance VS Gate-To-Source Voltage



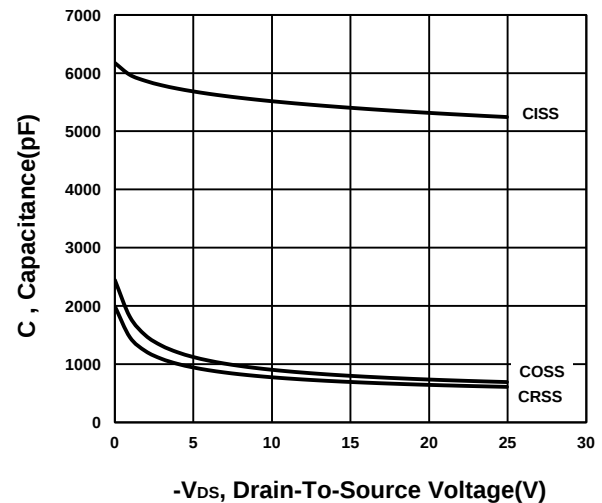
On-Resistance VS Drain Current



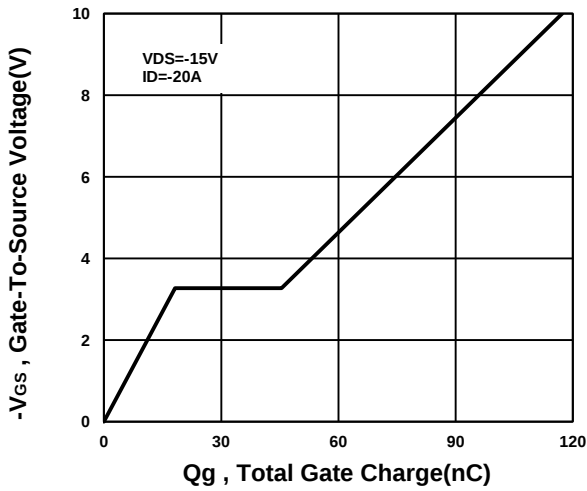
On-Resistance VS Temperature



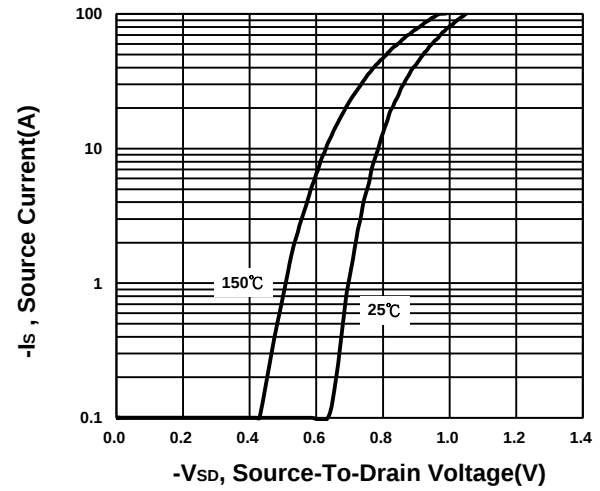
Capacitance Characteristic



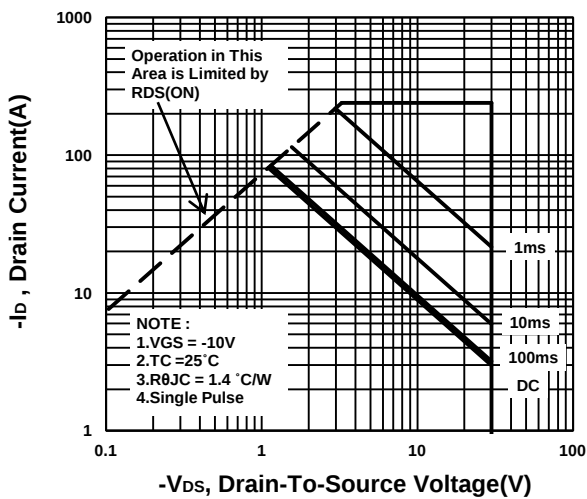
Gate charge Characteristics



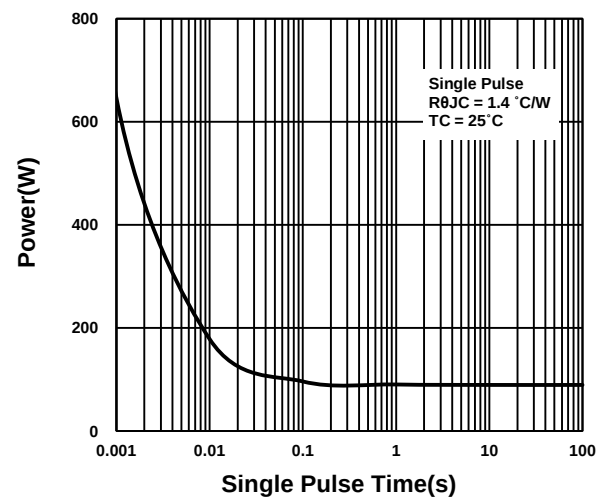
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

