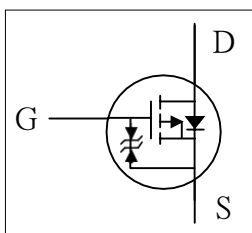


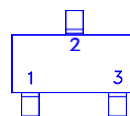
P-Channel High Density Trench MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-60V	4Ω	200mA



ESD PROTECTION DIODE



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}	-60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	$T_C = 25\text{ °C}$	I_D	-200	mA
	$T_C = 100\text{ °C}$		-120	
Pulsed Drain Current ¹		I_{DM}	-0.9	A
Power Dissipation	$T_C = 25\text{ °C}$	P_D	0.36	W
	$T_C = 100\text{ °C}$		0.23	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-40 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$		350	°C / W

¹Pulse width limited by maximum junction temperature.

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

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	-60			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	-1.0	-1.8	-2.5	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 16V$			±30	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -48V, V_{GS} = 0V$			-1	μA
		$V_{DS} = -40V, V_{GS} = 0V, T_J = 125\text{ °C}$			-10	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = -10V, V_{GS} = -10V$	-0.5			A
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = -3.5V, I_D = -10mA$		5.2	6	Ω
		$V_{GS} = -4.5V, I_D = -100mA$		4.5	5.5	
		$V_{GS} = -10V, I_D = -200mA$		4	5	
Forward Transconductance ¹	g_{fs}	$V_{GS} = -5V, I_D = -100mA$		4.4		S

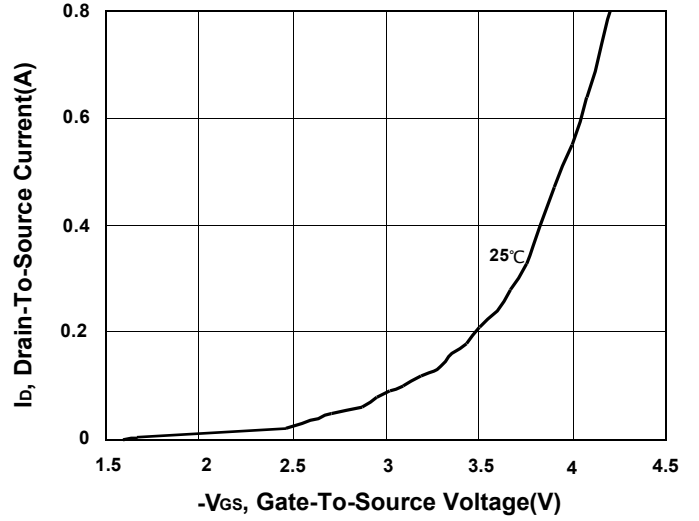
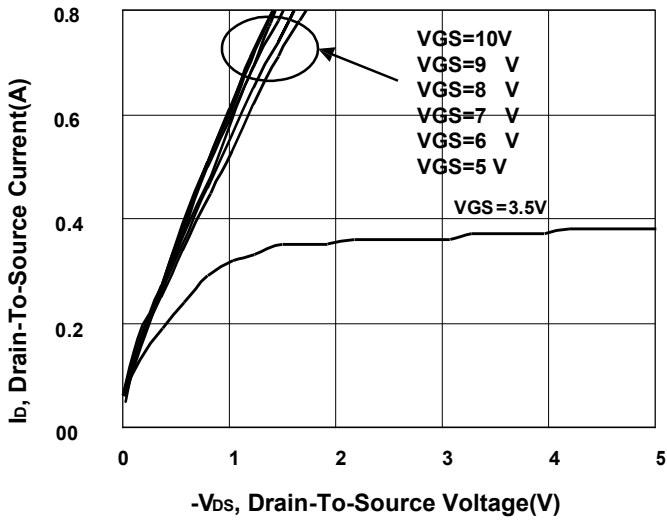
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = -25V, f = 1MHz$		27.7		pF
Output Capacitance	C_{oss}			17.3		
Reverse Transfer Capacitance	C_{rss}			7.5		
Total Gate Charge ²	Q_g	$V_{DS} = -30V_{(BR)DSS}, V_{GS} = -10V,$ $I_D = -200mA$		0.84		nC
Gate-Source Charge ²	Q_{gs}			0.19		
Gate-Drain Charge ²	Q_{gd}			0.21		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25\text{ }^\circ\text{C}$)						
Continuous Current	I_S	$I_F = -200mA, V_{GS} = 0V$		-200		mA
Forward Voltage ¹	V_{SD}			-0.85	-1.2	V

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

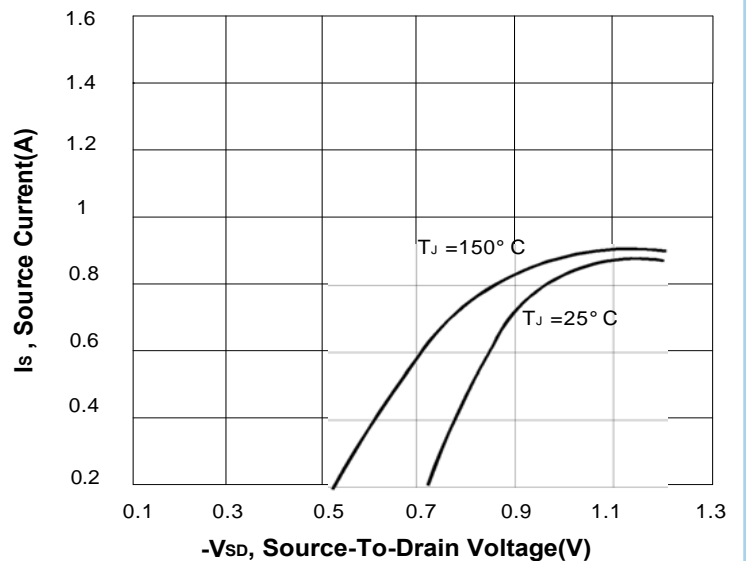
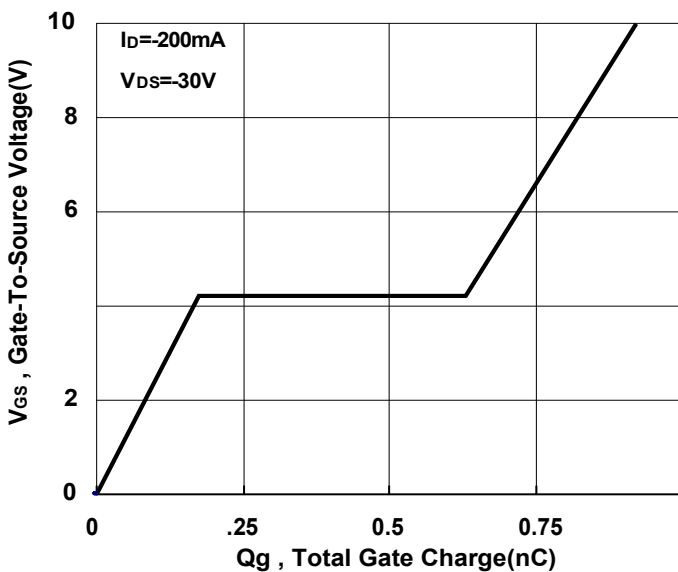
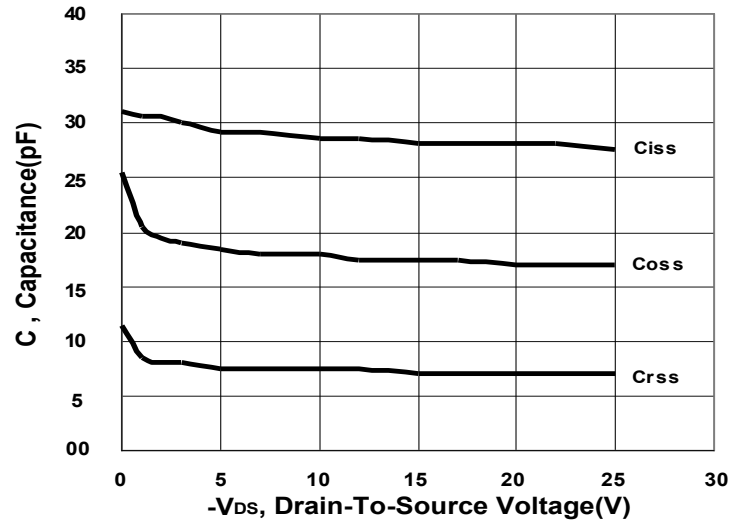
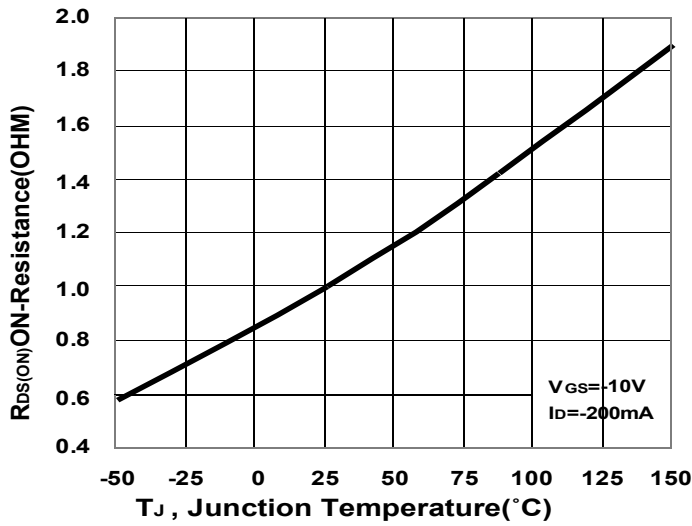
²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.

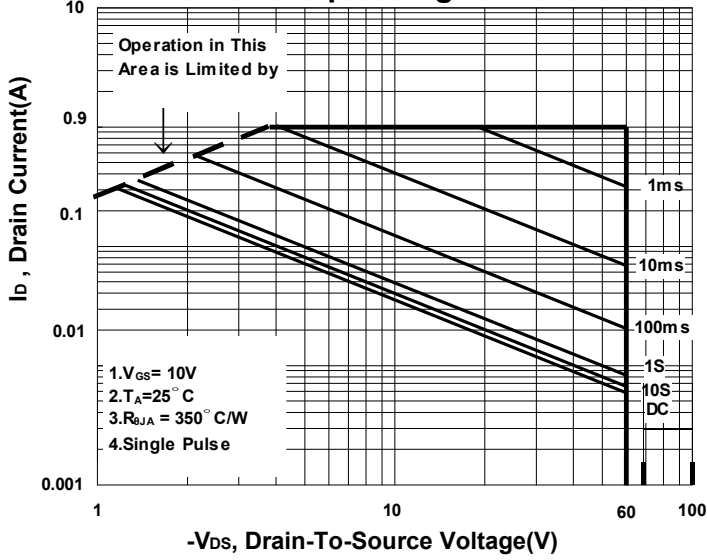
REMARK: ESD Protected Gate, 2KV HBM



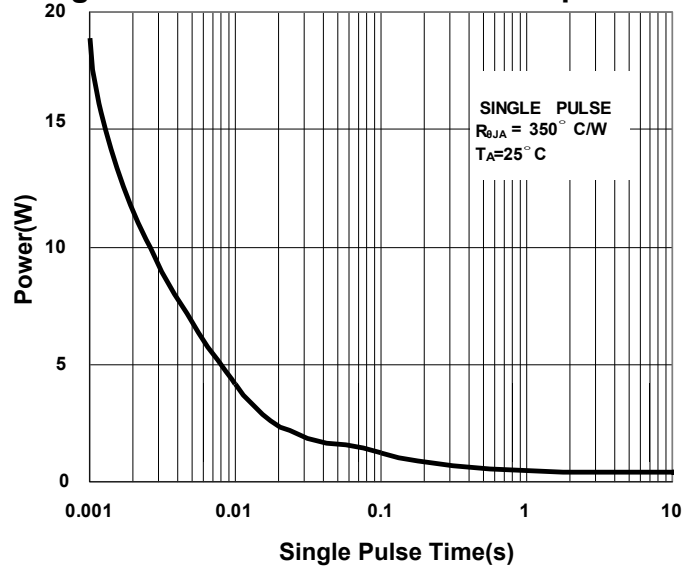
Capacitance Characteristic



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

