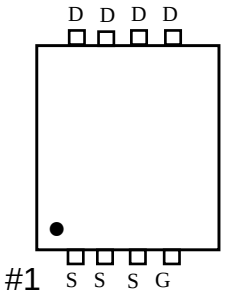
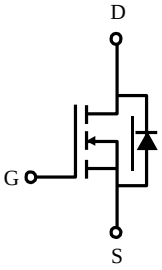
N-Channel High Density Trench MOSFET

FEATURES

- Super high dense cell trench design for low $R_{DS(on)}$.
- Rugged and reliable.
- Surface Mount package.

PDFN5x6





PRODUCT SUMMARY		
$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
100V	8mΩ	60A

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAME TERS TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gata-Source voltage		V_{GS}	±20	V
Continuous Drain current	T_C = 25℃	I_D	60	A
	T_C = 100 ℃		39	
Puised Drain Current[1]		I_{DM}	160	
Avalanche Current		I_{AS}	15	
Avalanche Energy	L=0.1mH	E_{AS}	33	mJ
Power Dissipation	T_C = 25 ℃	P_D	56.5	W
	T_C = 100 ℃		35	
Operaing junction & Storege Temperature Range		T_s,T_{stg}	-55 to 150	℃

THERMAL CHARACTERISTICS

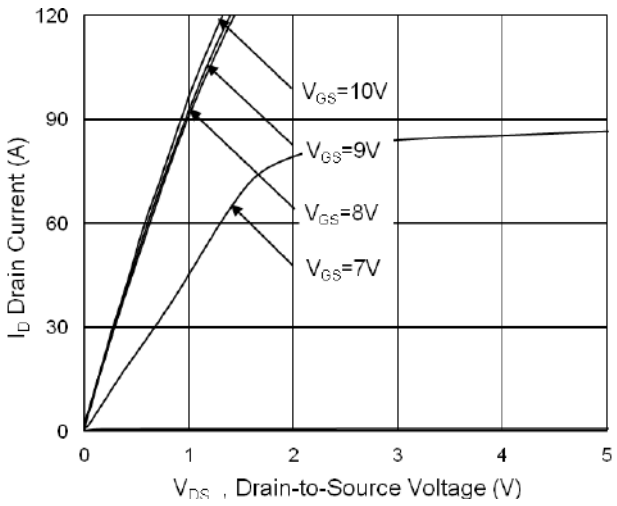
THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	RθJc		2.2	℃/W
Junction-to-Ambient	RθJA		50	℃/W

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

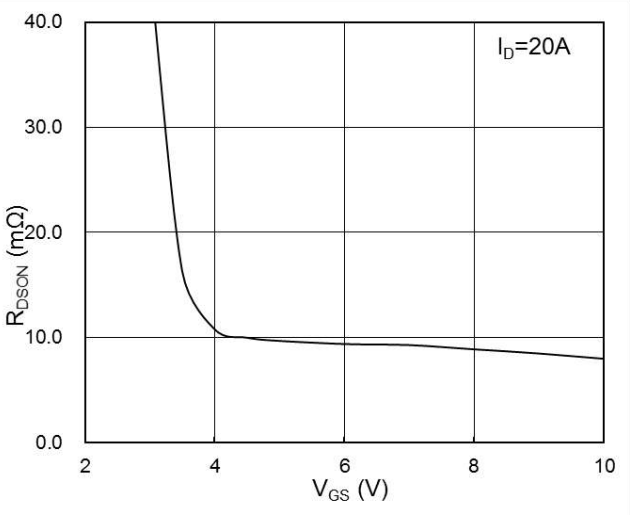
PARAMETER	SYNBOL	TEST CONDITIONS	LIMITS MIN	LIMITS TYP	LIMITS MAX	UNIT
STATIC						
Drain-Source Breakdown Voltege	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250μA	100			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	2	3	4	V
Gate-Body Leakage	I_{GSS}	V_{DS}=0V,V_{GS}=± 20V			±100	nA
Zero Gate Voltage Dain Current	I_{DSS}	V_{DS}=80V,V_{GS}=0 V			1	μA
		V_{DS}=80V,V_{GS}=0V,T_J=55℃			5	μA
Drain-Source On- State Resistance[1]	$R_{DS(ON)}$	$_{GS}$=10V,I_D=20A		8	11.5	mΩ
Forward Trans conductance[1]	g_{fs}	V_{DS}=5V,I_D=20A		36		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS}=0V,V_{DS}=50V,f=1MHz		2422		pF
Output Capacitance	C_{oss}			288		pF
Reverse Transfer Capacitance	C_{rss}			12		pF
Gate Resistance	R_G	V_{GS}=0V,f=1MHz		3.3		Ω
Total Gate Charge[2]	$Q_{g(vgs=10V)}$	V_{DS}=50V$_{(BR)DSS}$,V_{GS}=10V I_D = 20A		26		nC
	$Q_{g(vgs=4.5V)}$			12		nC
Gate Source Charge[2]	$Q_{gS(VGS=10V)}$			5.5		nC
Gate-Drain Charge[2]	$Q_{gd(VGS=10V)}$			5		nC
Tum-On Delay Time[2]	$t_{d(on)}$	V_{DS}=50V, I_D =20A,V_{GS}=10V.R_{GS}=3.3Ω		10		nS
Rise Time[2]	t_r			6.5		nS
Tum-Off Delay Time[2]	$t_{d(off)}$			45		nS
Fall Time[2]	t_r			7.5		nS
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS(T_J=25℃)						
Continuous Current	I_S				35	A
Forward Voltage[1]	V_{SD}	I_F=I_S,V_{GS}=0V		0.75	1.2	V
Reverse Recovery Time	T_{rr}	I_F=20A,d_{1f}/d_t=100A/μs		40		nS
Reverse Recovery Charge	Q_{rr}	I_F=20A,d_{1f}/d_t=100A/μs		162		nC

Note
b. Pulse Test Pulse width ≤ 300usec , Duty Cycle ≤ 2% .
c. Independent of operating production testing .

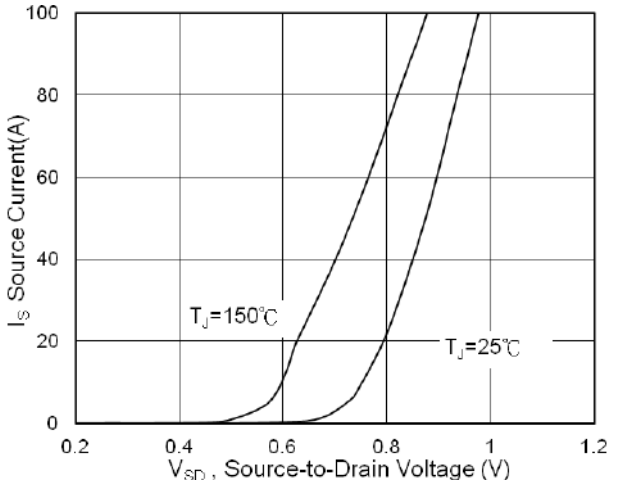
Typical Characteristics



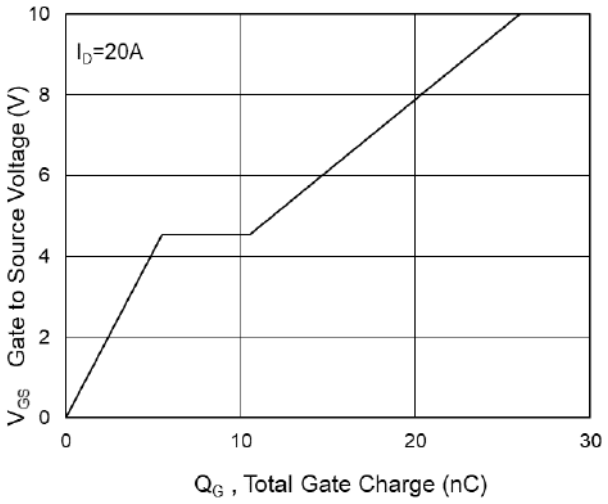
Typical Output Characteristics



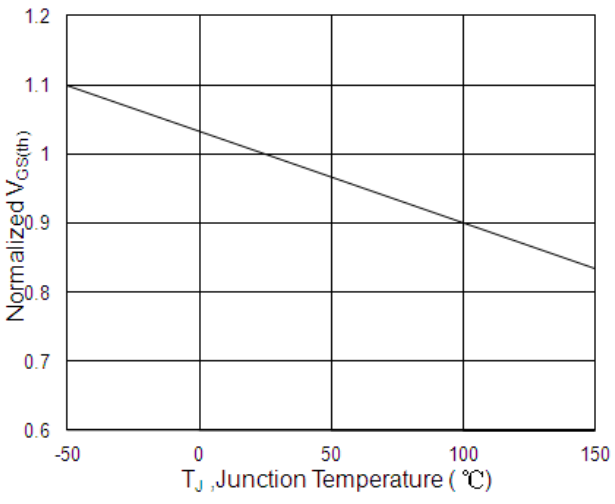
On-Resistance vs G-S Voltage



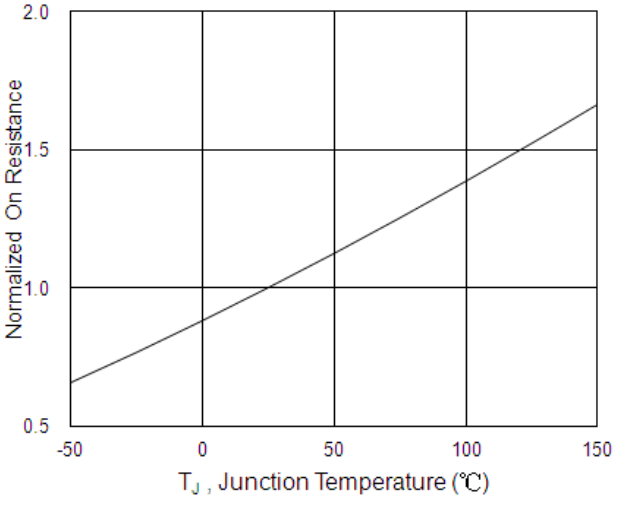
Source Drain Forward Characteristics



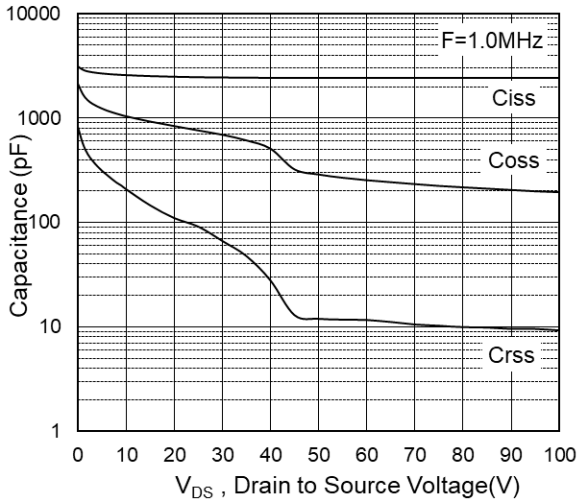
Gate-Charge Characteristics



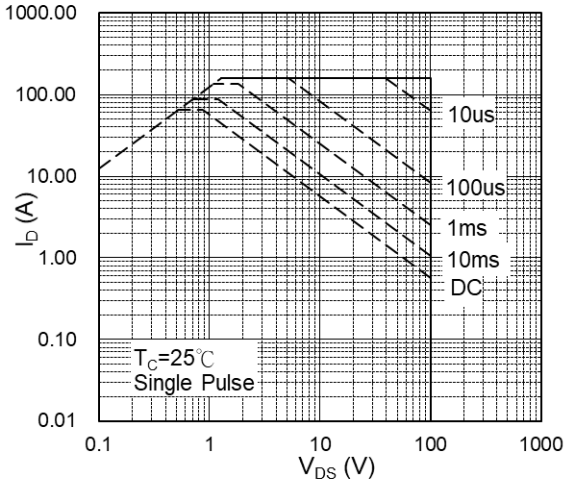
Normalized $V_{GS(th)}$ vs T_J



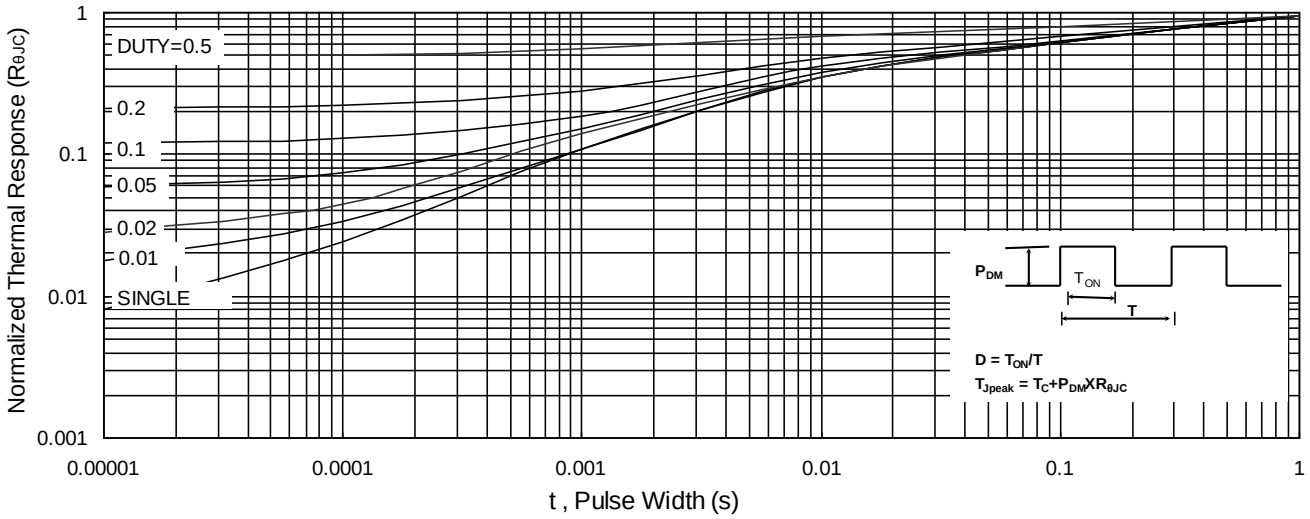
Normalized R_{DSON} vs T_J



Capacitance



Safe Operating Area



Normalized Maximum Transient Thermal Impedance