

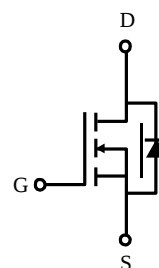
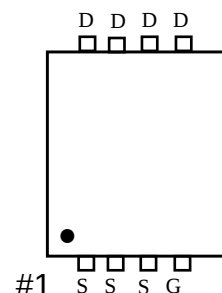
N-Channel MOSFET

FEATURES

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

PRODUCT SUMMARY		
$V_{(BR) DSS}$	$R_{DS(ON)}$	I_D
100V	9.1m Ω	44A

PDFN3*3



ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

PARAMETERS TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source voltage		V_{GS}	± 20	V
Continuous Drain current	$T_C = 25\text{ }^{\circ}\text{C}$	I_D	44	A
	$T_C = 100\text{ }^{\circ}\text{C}$		27.5	
Pulsed Drain Current ¹		I_{DM}	145	
Avalanche Current		I_{AS}	24	
Avalanche Energy	$L=0.1\text{mH}$	E_{AS}	130	mJ
Power Dissipation	$T_A = 25\text{ }^{\circ}\text{C}$	P_D	36	W
	$T_A = 100\text{ }^{\circ}\text{C}$		14	
Operating junction & Storage Temperature Range		T_S, T_{stg}	-55 to 150	$^{\circ}\text{C}$

THERMAL CHARACTERISTICS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta Jc}$		3.5	$^{\circ}\text{C/W}$
Junction-to-Ambient	$R_{\theta JA}$		62	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	100			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.7	2.5	
Gate-Body Leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Dain Current	I_{DSS}	$V_{DS}=80V, V_{GS}=0 V$			1	μA
		$V_{DS}=80V, V_{GS}=0V, T_J=55^{\circ}C$			10	
Drain-Source On- State Resistance ¹	$R_{DS(ON)}$	$V_{GS}=10V, I_D=20A$		9.1	10.9	mΩ
		$V_{GS}=4.5V, I_D=11.5A$		12	15	
Forward Trans conductance ¹	g_{fs}	$V_{DS}=5V, I_D=20A$		29		S

DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=50V, f=1\text{MHz}$		1007		pF
Output Capacitance	C_{oss}			439		
Reverse Transfer Capacitance	C_{rss}			10		
Gate Resistance	R_G	$V_{GS}=0V, f=1\text{MHz}$		1.1		Ω
Total Gate Charge ²	$Q_{g(vgs=10V)}$	$V_{DS}=50V_{(BR)DSS},$ $I_D = 20A$		17.8		nC
	$Q_{g(vgs=4.5V)}$			9.2		
Gate Source Charge ²	$Q_{gS}(V_{GS}=10V)$			3		
Gate-Drain Charge ²	$Q_{gd}(V_{GS}=10V)$			3.9		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DS}=50V, R_L=1.5\Omega$ $I_D=20A, V_{GS}=10V, R_{GS}=3\Omega$		3.5		nS
Rise Time ²	t_r			3.2		
Turn-Off Delay Time ²	$t_{d(off)}$			15		
Fall Time ²	t_f			7.1		

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J=25^\circ\text{C}$)

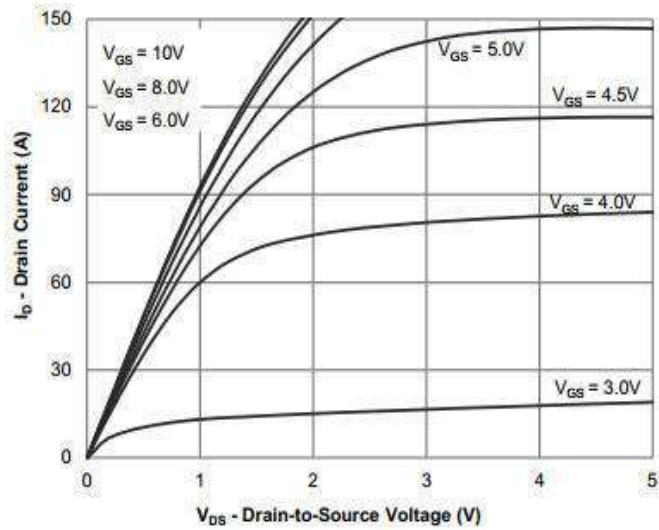
Continuous Current	I_S				44	A
Forward Voltage ¹	V_{SD}	$I_F=I_S, V_{GS}=0V$		0.75	1.2	V
Reverse Recovery Time	T_{rr}	$I_F=13.5A, dI_f/dt=100A/\mu s$		39		nS
Reverse Recovery Charge	Q_{rr}	$I_F=13.5A, dI_f/dt=100A/\mu s$		28		nC

Note

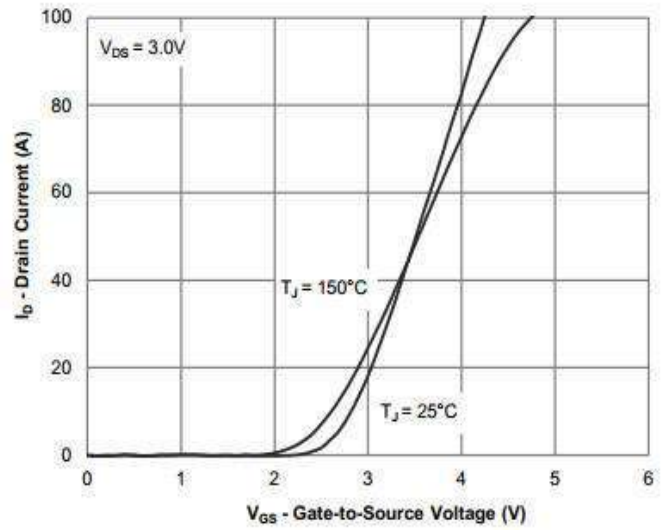
b. Pulse Test Pulse width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

c. Independent of operating production testing.

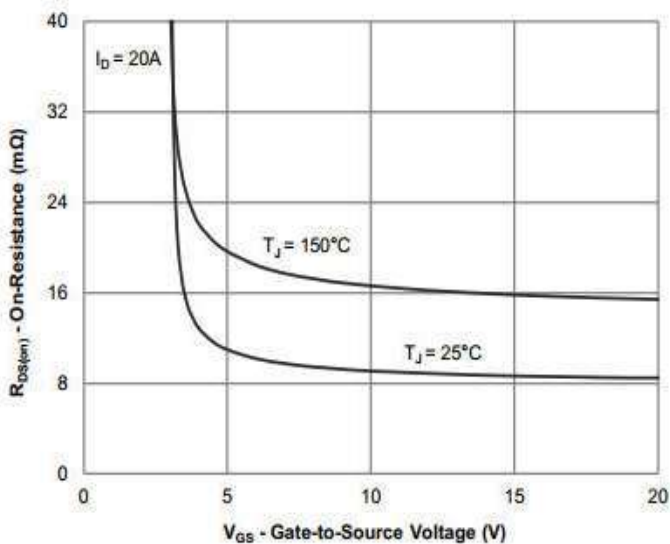
Typical Electrical and Thermal Characteristics



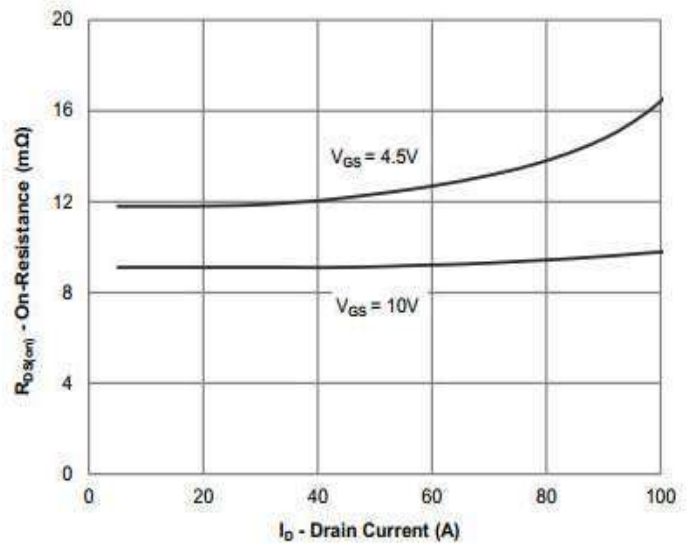
Output Characteristics



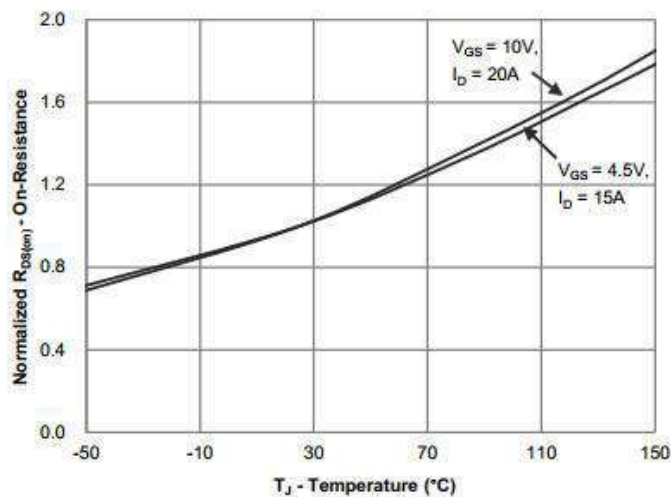
Transfer Characteristics



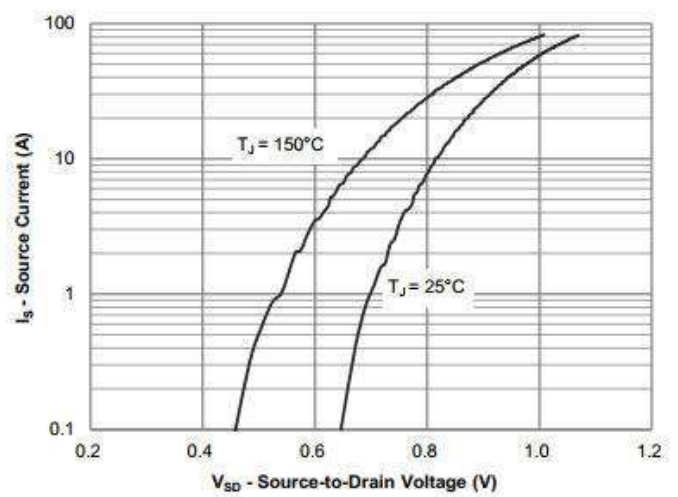
On-Resistance vs. Gate-Source Voltage



On-Resistance vs. Gate-Source Voltage

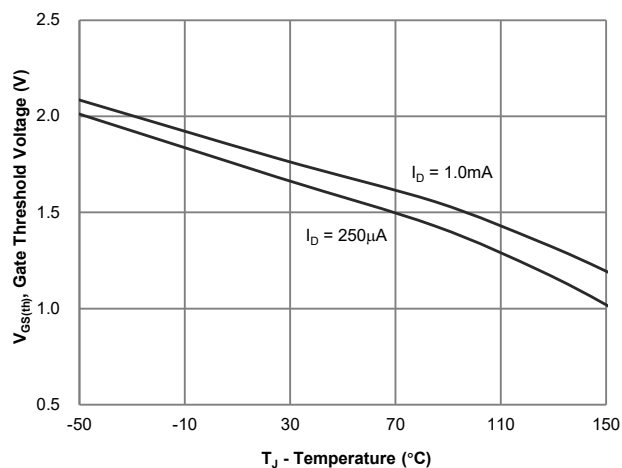


On-Resistance vs. Junction Temperature

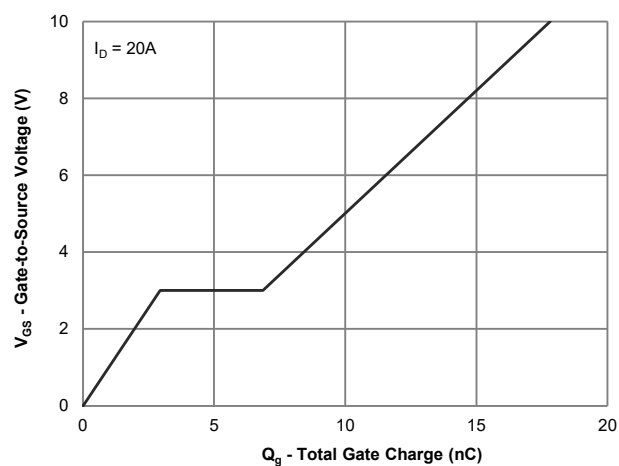


Source-Drain Diode Forward Voltage

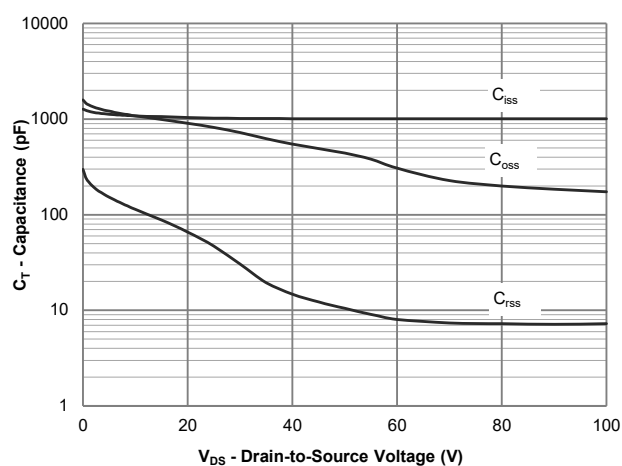
Typical Electrical and Thermal Characteristics



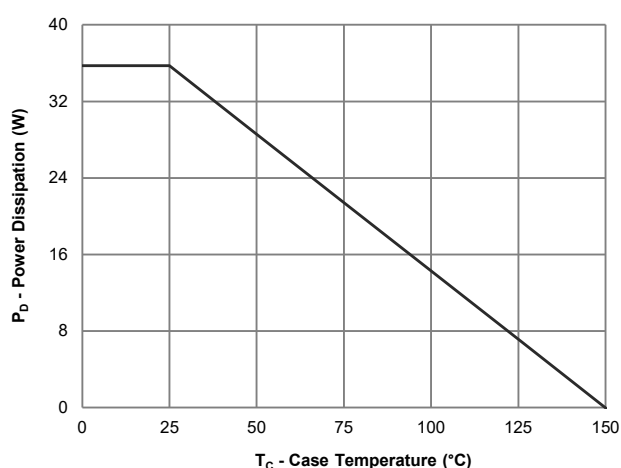
Gate Threshold Variation vs. Junction Temperature



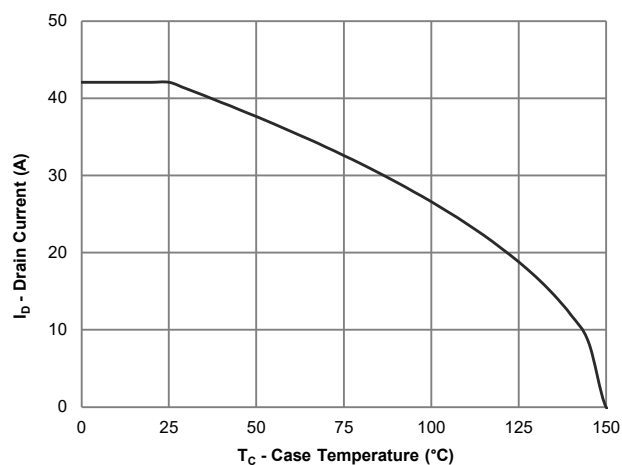
Gate Charge Characteristics



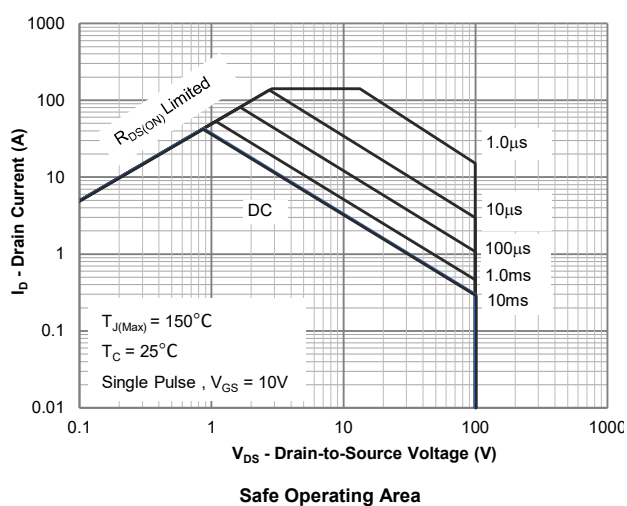
Capacitance Characteristics



Power Derating



Current Derating



Safe Operating Area

Typical Electrical and Thermal Characteristics

