

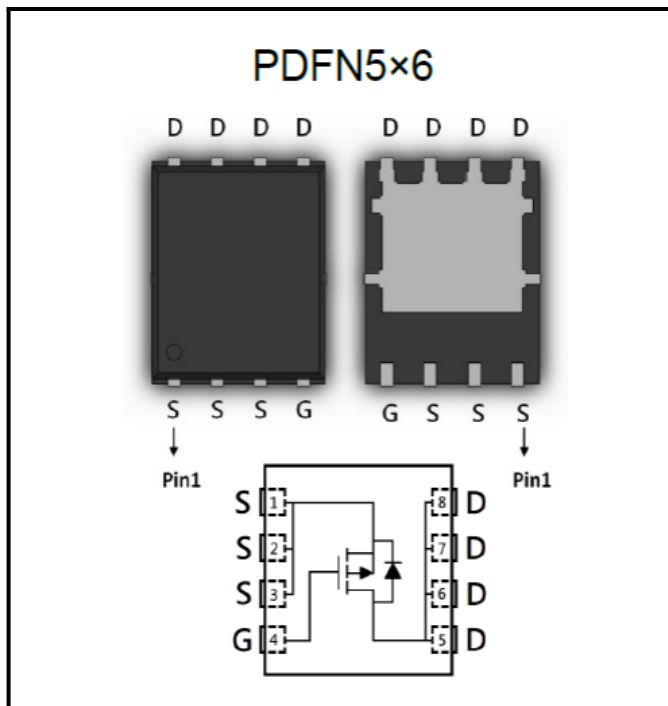
Features

- $V_{DS} = -30V, I_D = -50A$
- $Typ. R_{DS(ON)} = 5.3 m\Omega (Typ.) @ V_{GS} = -10V, I_d = -20A$
- $Typ. R_{DS(ON)} = 7.5 m\Omega (Typ.) @ V_{GS} = -4.5V, I_d = -10A$
- Fast Switching
- Low On-Resistance
- Halogen and Antimony Free, RoHS compliant

Applications

- Switch switching
- Power management in portable/desktop PCs

Package



Absolute Maximum Ratings ($T_A = 25^\circ C$ unless otherwise specified)

Symbol	Parameter		Value	Units
V_{DS}	Drain-Source Voltage		-30	V
V_{GS}	Gate - Source Voltage		± 20	
I_D	Drain Current	$T_C = 25^\circ C$	-50	A
		$T_C = 100^\circ C$	-32	
I_{DM}	Drain Current-Pulse		-200	A
I_{AS}	Avalanche Current(L=0.5mH)		26	A
E_{AS}	Avalanche Energy, Single Pulsed		169	mJ
P_D	Power Dissipation	$T_C = 25^\circ C$	57	W
		$T_C = 100^\circ C$	26	
T_J	Junction Temperature(Max)		-55 to 150	$^\circ C$
T_{stg}	Storage Temperature		-55 to 150	

Thermal Characteristics

Parameter	Symbol	Conditions	Value.	Units
Thermal Resistance from Junction to Case	$R_{\theta JC}$	—	2.2	$^\circ C/W$
Thermal Resistance From Junction to Ambient	$R_{\theta JA}$	—	56	



Electrical Characteristics (T_A=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D = -250uA	-30	—	—	V
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _{DS} = -250uA	-1.0	-1.6	-2.2	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -30V, V _{GS} = 0V	—	—	-1	uA
Gate- Source Leakage Current,Reverse	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V	—	—	±100	nA
Static Drain-source On Resistance	R _{DS(on)}	V _{GS} = -10V, I _D = -20A	—	5.3	7.0	mΩ
		V _{GS} = -4.5V, I _D = -10A	—	7.5	9.8	
Input capacitance	C _{iss}	V _{DS} = -15V, V _{GS} = 0V, f = 1MHz	—	4100	—	pF
Output capacitance	C _{oss}		—	510	—	
Reverse transfer capacitance	C _{rss}		—	485	—	
Turn-on delay time	T _{d(on)}	V _{DS} = -15V, V _{GS} = -10V, I _D = -20A, R _G = 1Ω	—	25	—	nS
Turn-on Rise time	T _r		—	30	—	
Turn -Off Delay Time	T _{d(off)}		—	52	—	
Turn -Off Fall time	T _f		—	14	—	
Gate to Source Charge	Q _{gs}	V _{DS} = -15V, V _{GS} = -10V, I _D = -20A	—	11	—	nC
Gate to Drain Charge	Q _{gd}		—	16	—	
Gate to Drain Charge	Q _g		—	79	—	
Gate Resistance	R _g	f = 1MHz	—	10	—	Ω
Diode Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = -30A,	—	—	-1.2	V
Reverse Recovery Time	T _{rr}	I _{SD} = -20A, V _{GS} = 0V	—	26	—	nS
Reverse Recovery Charge	Q _{rr}	di/dt = 100A/μs	—	12	—	nC



Electrical Characteristics Diagrams

Figure 1: On-Regin Characteristics

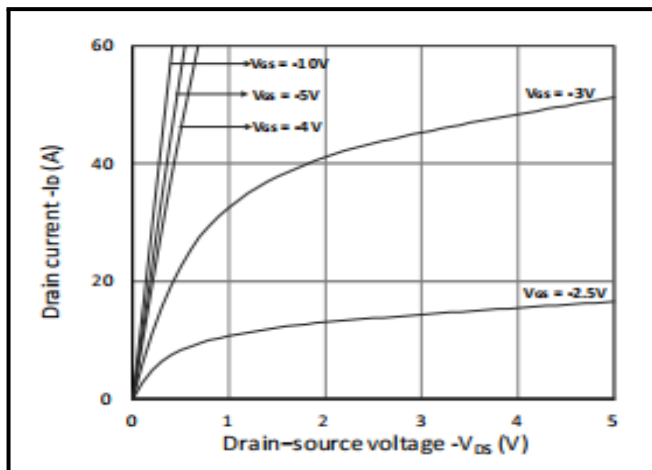


Figure 2: Transfer Characteristics

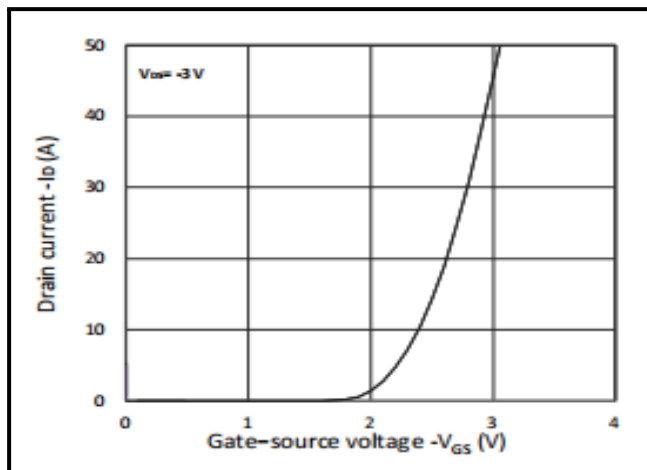


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

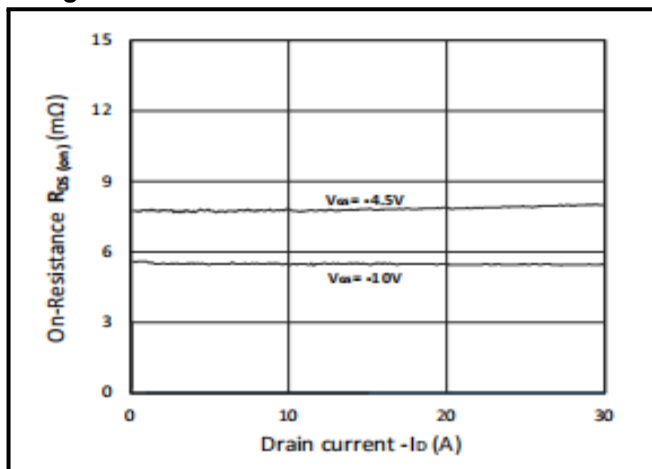


Figure 4: On-Resistance vs. Junction Temperature

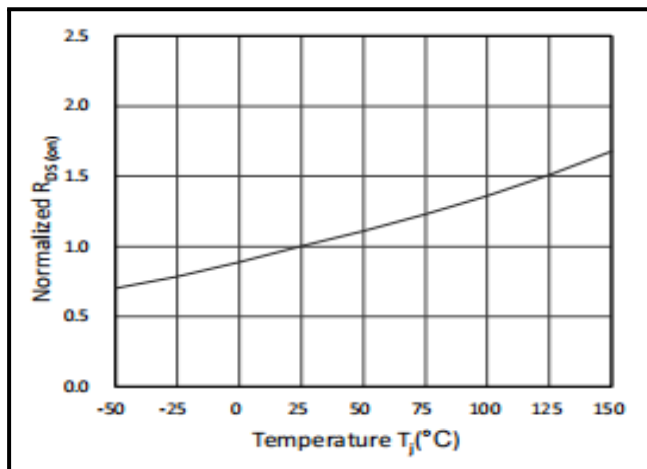


Figure 5: On-Resistance vs. Gate-Source Voltage

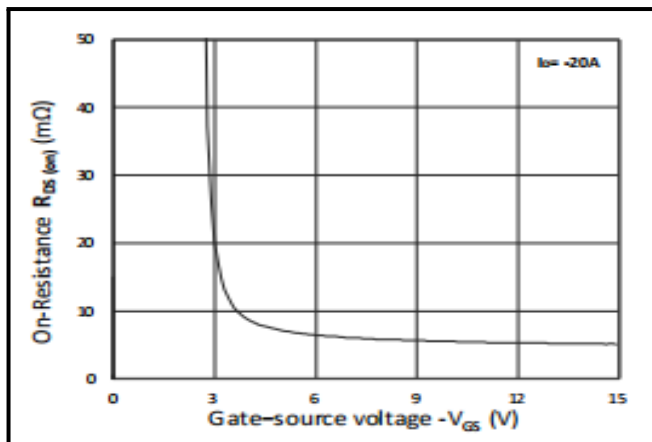
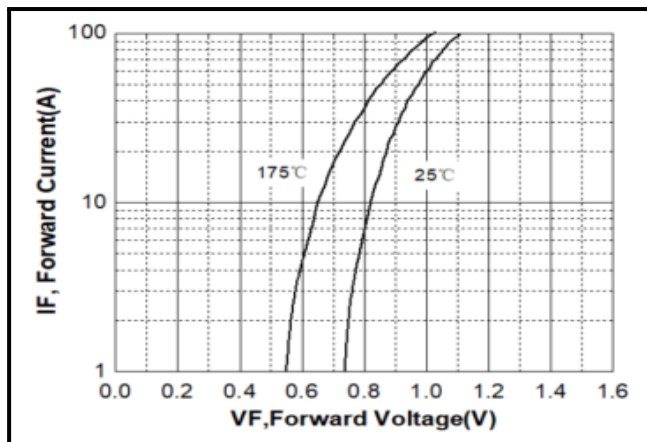


Figure 6: Body-Diode Characteristics



Electrical Characteristics Diagrames

Figure 7: Gate-Charge Characteristics

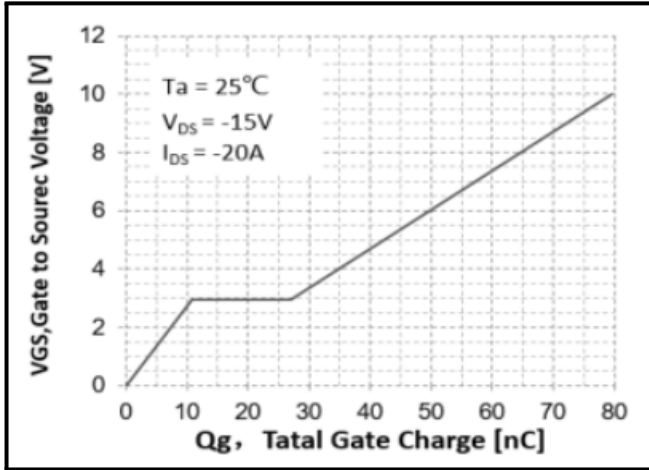


Figure 8: Capacitance Characteristics

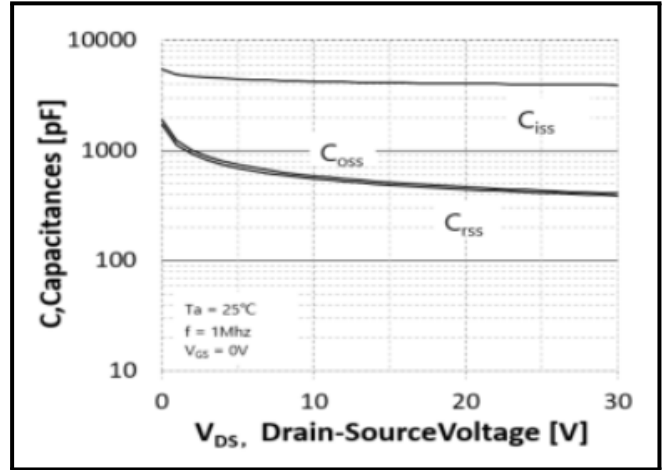


Figure 9: Maximum Forward Biased Safe Operating Area

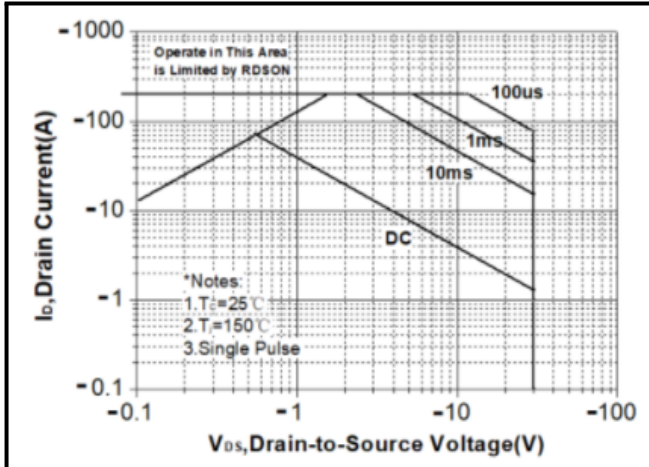


Figure 10: Single Pulse Power Rating Junction-to-Ambient

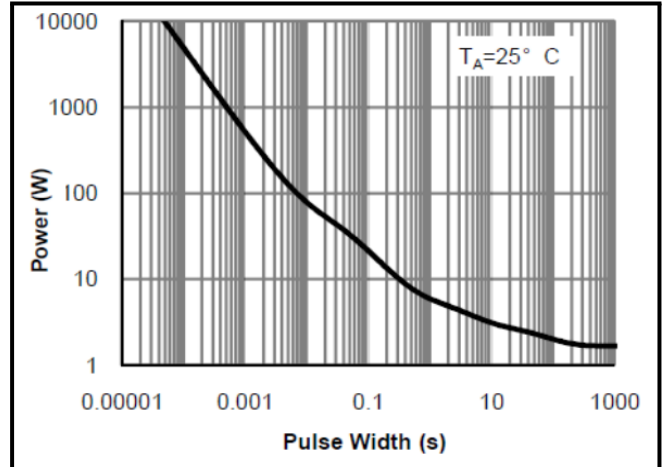
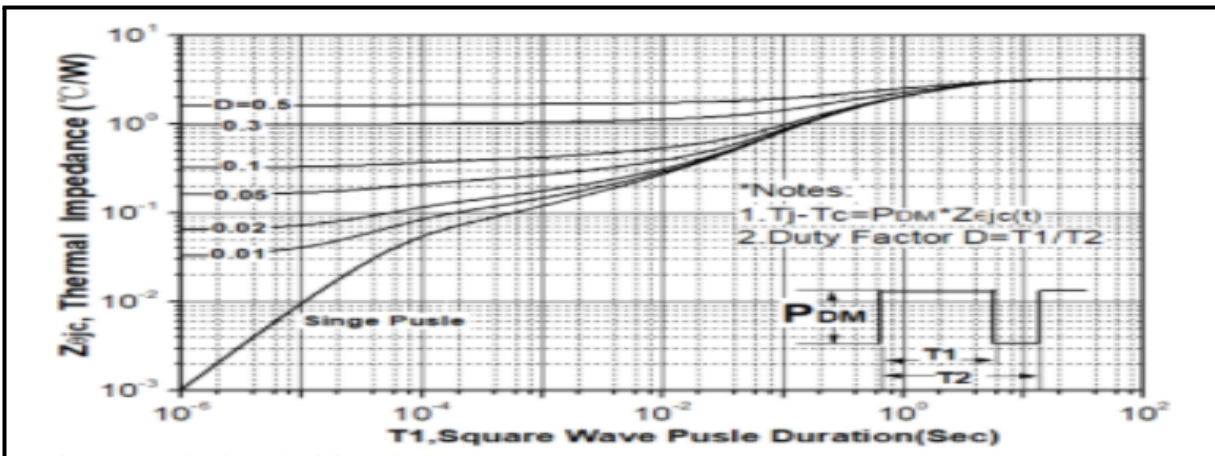
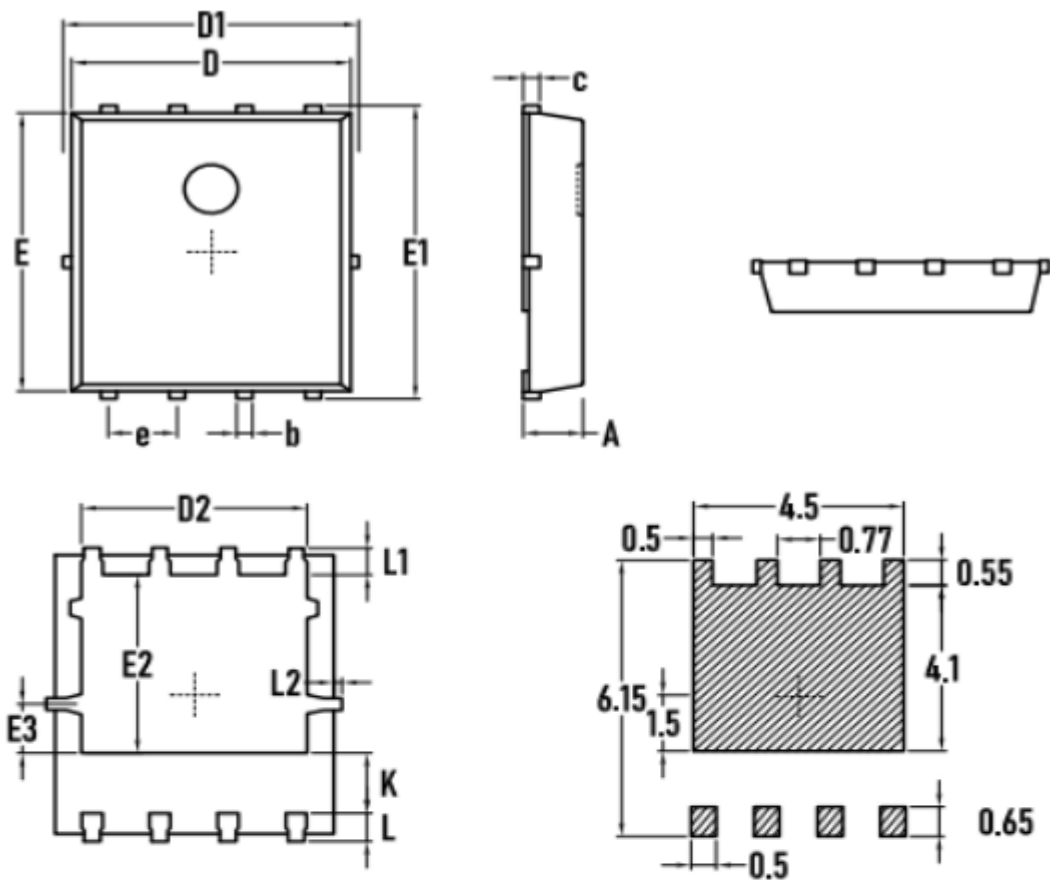


Figure 11: Normalized Maximum Transient Thermal Impedance



Packaging Tape -PDFN5*6



SYMBOL	MILLIMETER		
	MIN.	Typ.	MAX.
A	0.90	1.00	1.10
b	0.25	0.35	0.50
C	0.10	0.20	0.30
D	4.80	5.00	5.30
D1	4.90	5.10	5.50
D2	3.92	4.02	4.20
e	—	1.27	—
E	5.65	5.75	5.85
E1	5.90	6.05	6.20
E2	3.325	3.525	3.775
E3	0.80	0.90	1.00
K	1.00	1.30	1.50
L	0.40	0.55	0.70
L1	—	0.65	—
L2	—	—	0.15

