

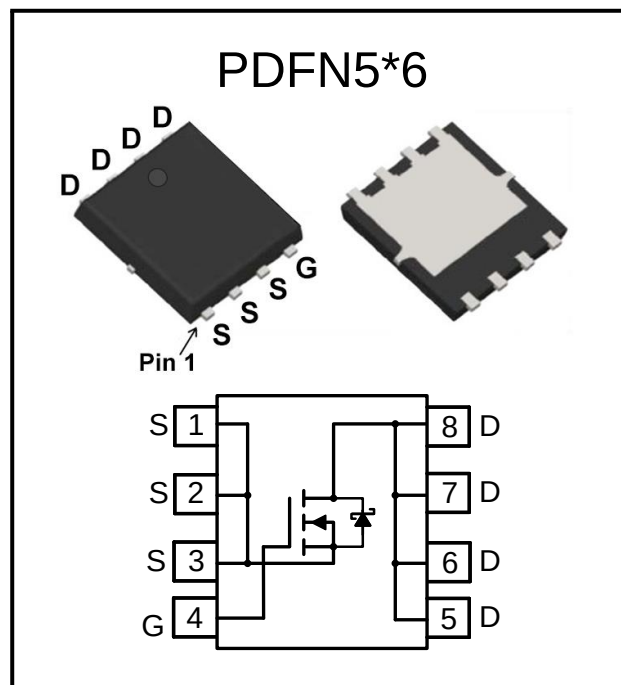
Features

- $V_{(BR)DSS}=150V$, $I_D=19.5A$
- $R_{DS(on)}@V_{GS}=10V$, TYP=54m Ω
- Split Gate Trench Technology
- Low Gate Charge
- Low Gate Resistance

Application

- Power Switching Application

Package



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

Symbol	Parameter		Value	Units
V_{DS}	Drain-Source Voltage		150	V
V_{GS}	Gate - Source Voltage		± 20	
I_D	Drain Current	$T_C=25^{\circ}C$	19.5	A
		$T_C=100^{\circ}C$	12.5	
I_{DM}	Drain Current-Pulse		60	A
I_{AS}	Avalanche Current		22	A
E_{AS}	Single Pulse Avalanche Energy		78	mJ
P_D	Power Dissipation ⁵	$T_C=25^{\circ}C$	57	W
T_J	Junction Temperature(Max)		-55 to 150	$^{\circ}C$
T_{stg}	Storage Temperature		-55 to 150	
$R_{\theta JC}$	Thermal Resistance from Junction to Case		2.2	$^{\circ}C/W$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient ⁶		54	



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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D =250uA	150	–	–	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 150V, V _{GS} =0V	–	–	1	uA
Gate- Source Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} =0V	–	–	±100	nA
On Characteristics ⁴						
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _{DS} =250uA	2.5	3.4	4.5	V
Static Drain-source On Resistance	R _{DS(on)}	V _{GS} =10V, I _D =10A	–	54	65	mΩ
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =10A	–	13	–	S
Dynamic Characteristics						
Input capacitance	C _{iss}	V _{DS} =75V, V _{GS} =0V, f = 1MHz	–	732	–	pF
Output capacitance	C _{oss}		–	66	–	
Reverse transfer capacitance	C _{rss}		–	7.2	–	
Gate Resistance	R _g	V _{GS} = V _{DS} =0V,f = 1MHz	–	1.2	–	Ω
Switching Characteristics						
Turn-on delay time	T _{d(on)}	V _{DS} =75V, V _{GS} =10V, I _D =10A, R _G =3Ω	–	4.6	–	ns
Turn-on Rise time	T _r		–	3.7	–	
Turn -Off Delay Time	T _{d(off)}		–	5.8	–	
Turn -Off Fall time	T _f		–	2.2	–	
Gate to Drain Charge	Q _g	V _{DS} =75V, V _{GS} =10V, I _D =10A	–	6.9	–	nC
Gate to Source Charge	Q _{gs}		–	2.3	–	
Gate to Drain Charge	Q _{gd}		–	1.9	–	
Source - Drain Diode Characteristics						
Diode Forward Voltage ⁴	V _{SD}	V _{GS} =0V,I _S =2.0A	–	–	1.2	V
Body Diode Reverse Recovery Time	t _{rr}	I _F =10A, dI _F /dt=100A/us	–	58	–	ns
Body Diode Reverse Recovery Charge	Q _{rr}		–	120	–	nC
Diode Forward Current	I _S	–	–	–	19.5	A

Notes:

- (1) The maximum current rating is limited by package.And device mounted on a large heatsink.
- (2) Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.
- (3) E_{AS} condition: V_{DD}= 75V, V_{GS}= 10V, L = 1.0mH, R_G = 25Ω Starting T_J = 25°C.
- (4) Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
- (5) The power dissipation PD is limited by T_{J(Max)} = 150°C.And device mounted on a large heatsink.
- (6) Device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.



Electrical Characteristics

Figure 1: Output Characteristics

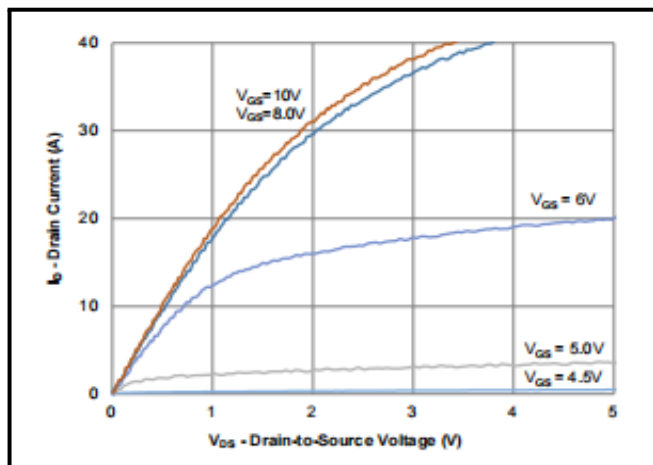


Figure 2: Transfer Characteristics

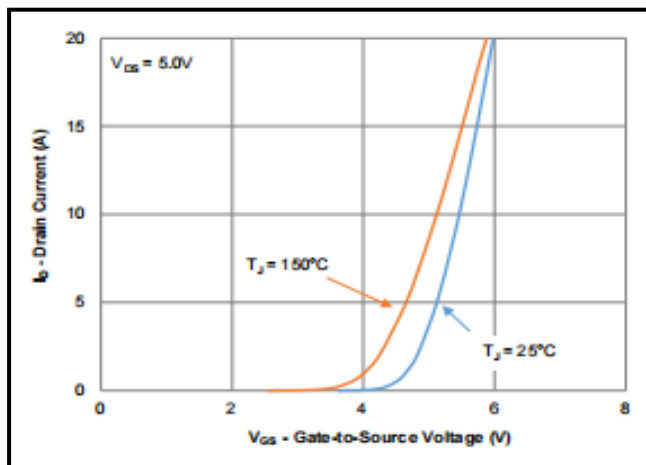


Figure 3: $R_{DS(ON)}$ vs V_{GS}

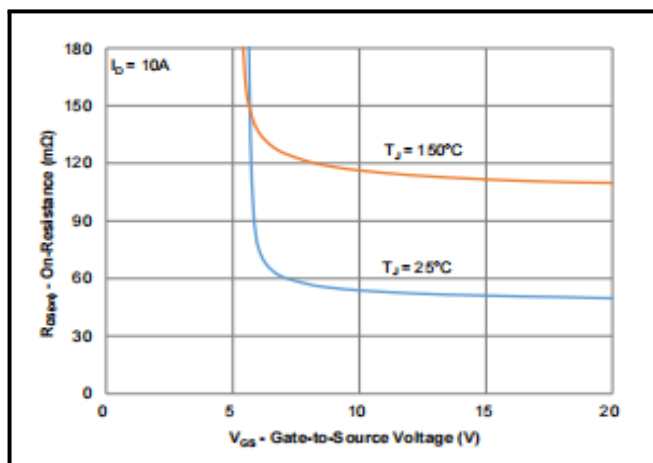


Figure 4: $R_{DS(ON)}$ vs I_D

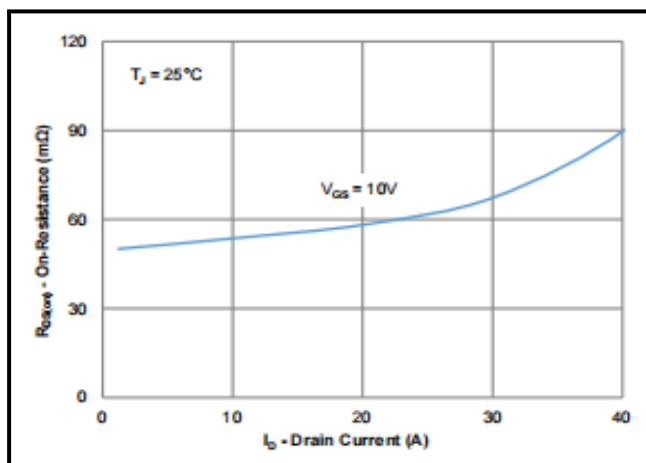


Figure 5: $R_{DS(ON)}$ vs T_J

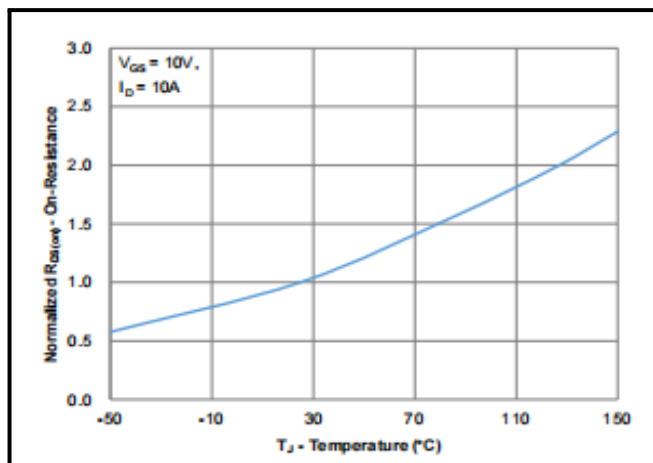
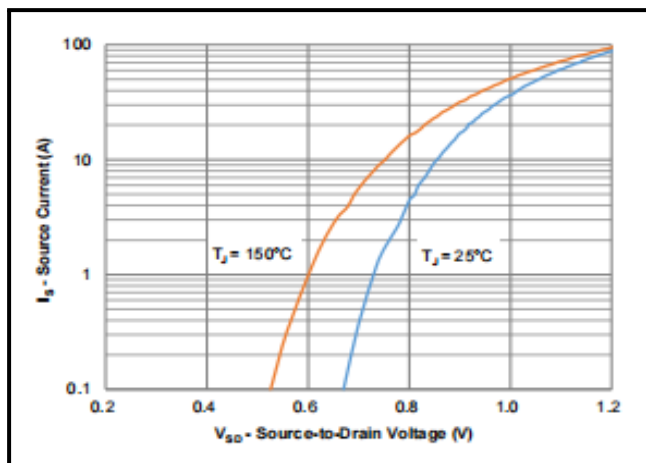


Figure 6: Source-Drain Diode Forward Voltage



Electrical Characteristics

Figure 7: $V_{GS(th)}$ vs T_J

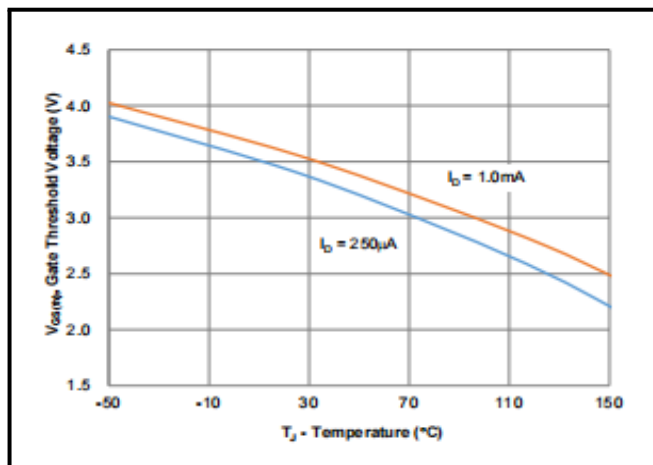


Figure 8: Gate Charge Characteristics

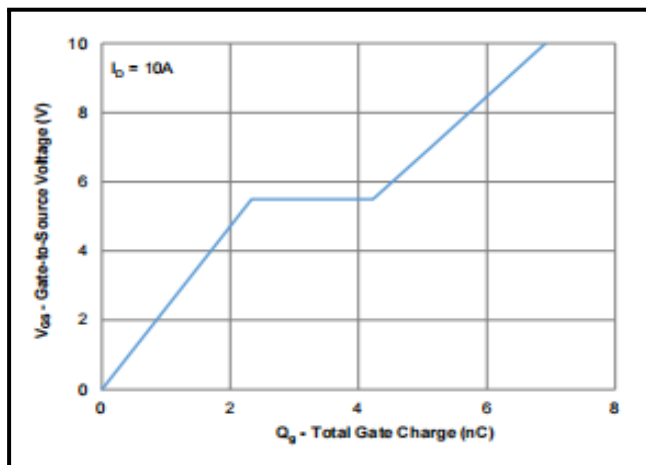


Figure 9: Capacitance Characteristics

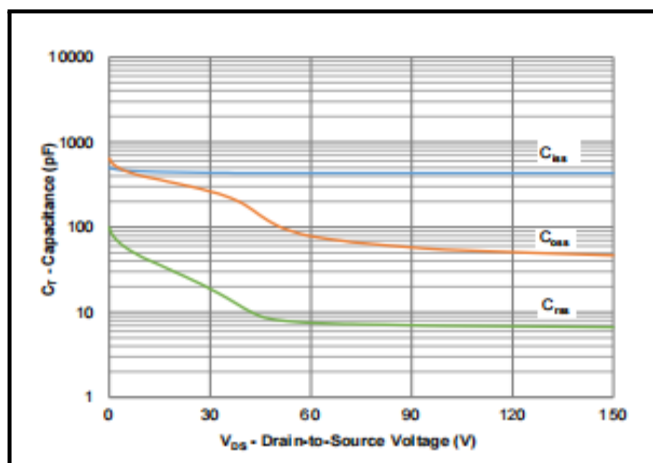


Figure 10: Power Derating

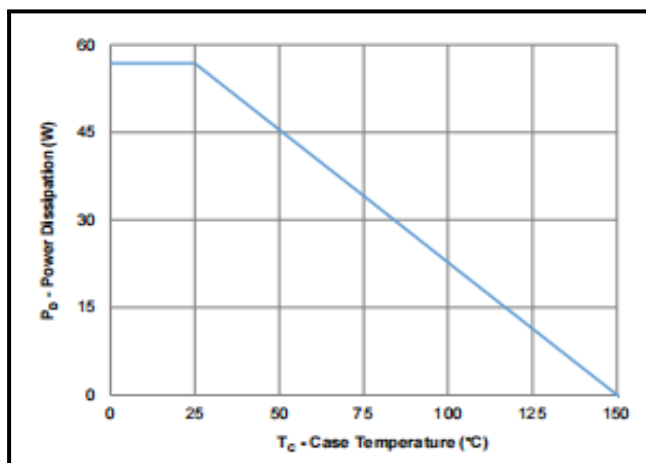


Figure 11: Current Derating

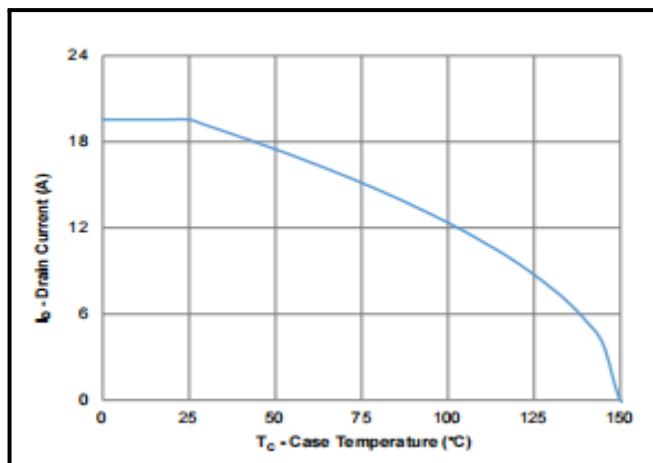
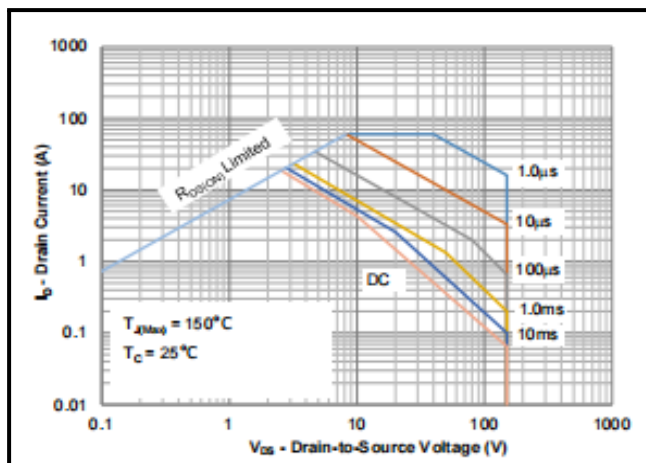
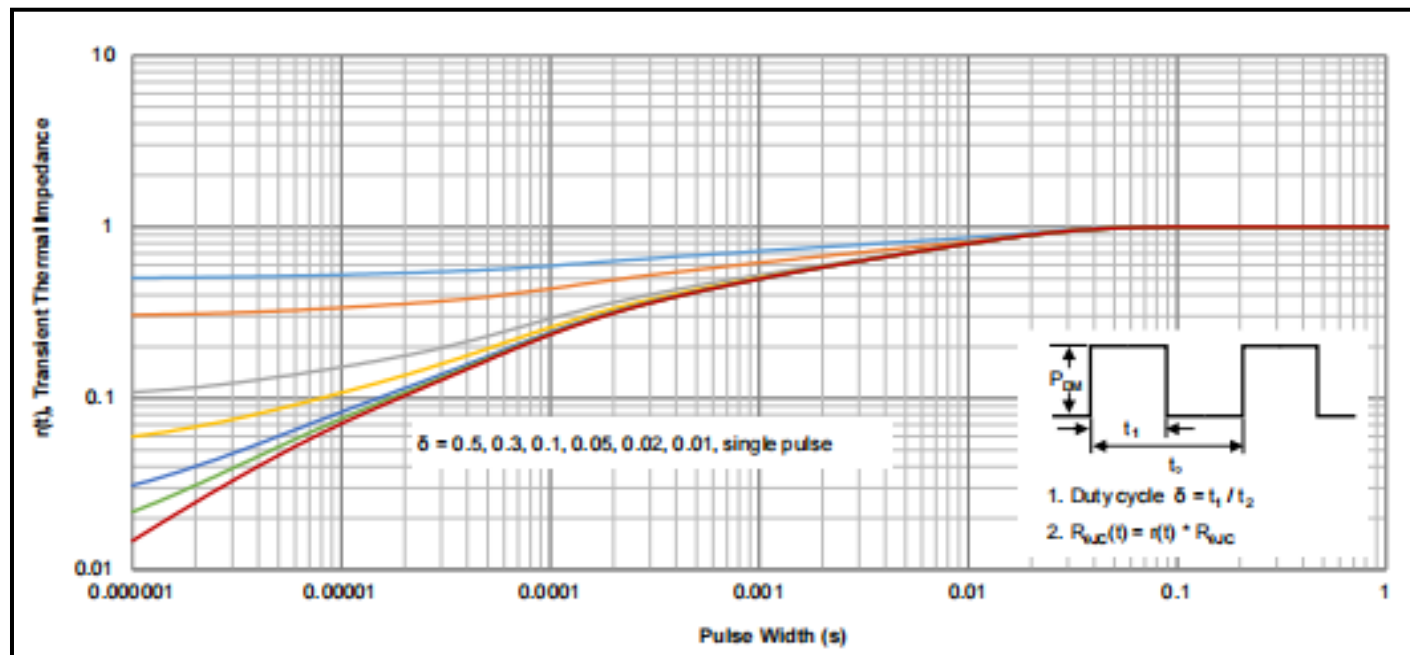


Figure 12: Safe Operating Area

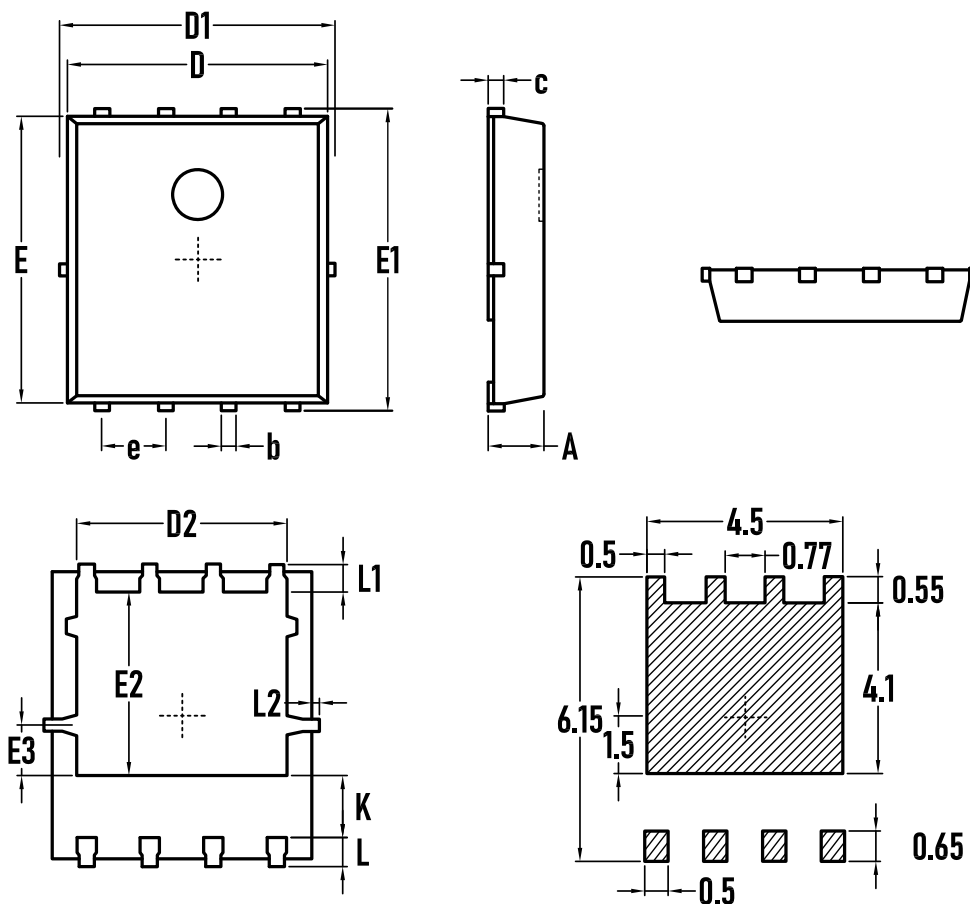


Electrical Characteristics

Figure 13: Normalized Maximum Transient Thermal Impedance



Packaging Tape -PDFN5x6



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

