

Product Summary

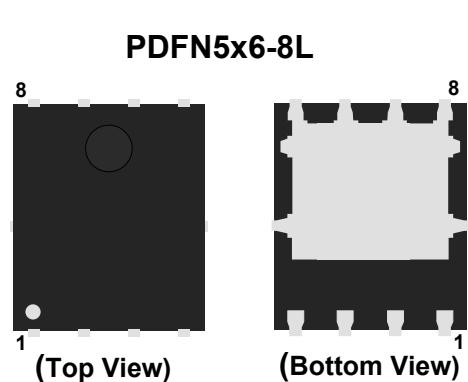
- $V_{DS} = 40V, I_D = 180A$
- $R_{DS(on)} < 3.1m\Omega$ @ $V_{GS} = 10V$

Features

- Advanced Trench Technology
- 100% Avalanche Tested
- RoHS Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 3

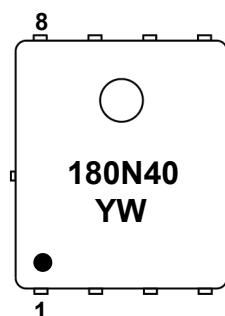
Application

- Consumer electronic power supply
- Synchronous-rectification
- Isolated DC

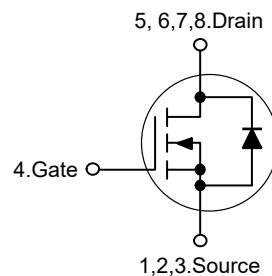


Pin	Description
1,2,3	Source
4	Gate
5,6,7,8	Drain

Marking Code



Schematic Diagram



Absolute Maximum Ratings

Ratings at 25°C case temperature unless otherwise specified.

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D ^①	180	A
Pulsed Drain Current	I_{DM} ^{①②}	720	A
Single Pulsed Avalanche Energy	E_{AS} ^③	520	mJ
Power Dissipation	P_D ^①	96	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$ ^⑤	62.5	°C/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$ ^①	1.3	°C/W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	°C

Thermal Characteristics

Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1	°C/W
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Electrical Characteristics

(T_J=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	V _{(BR) DSS}	V _{GS} = 0V, I _D = 1mA	40	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} = 32V, V _{GS} = 0V	-	-	1.0	μA
		T _J = 25°C	-	-	100	
Gate-body leakage current	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V	-	-	±100	nA
On characteristics ^④						
Gate-threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.0	1.7	2.5	V
Static drain-source on-state resistance	R _{D(on)}	V _{GS} = 10V, I _D = 30A	-	1.2	1.5	mΩ
		V _{GS} = 4.5V, I _D = 30A	-	1.8	2.8	mΩ
Dynamic characteristics						
Input capacitance	C _{iss}	V _{DS} = 20V, V _{GS} = 0V, f = 100kHz	-	3900	-	pF
Output capacitance	C _{oss}		-	1390	-	
Reverse transfer capacitance	C _{rss}		-	58	-	
Gate resistance	R _g	f = 1MHz	-	5.2	-	Ω
Switching characteristics						
Total gate charge	Q _g	V _{GS} = 4.5V, V _{DS} = 20V, I _D = 75A	-	26	-	nC
Total gate charge	Q _g		-	57.8	-	
Gate-source charge	Q _{gs}		-	9.9	-	
Gate-drain charge	Q _{gd}		-	11.7	-	
Turn-on delay time	t _{d(on)}	V _{DS} = 20V, V _{GS} = 10V, R _L = 0.8Ω, R _g = 4.8Ω	-	4.7	-	ns
Turn-on rise time	t _r		-	9.8	-	
Turn-off delay time	t _{d(off)}		-	85	-	
Turn-off fall time	t _f		-	45	-	
Drain-Source Diode Characteristics						
Drain-source diode forward voltage	V _{SD} ^④	V _{GS} = 0V, I _S = 30A	-	-	1.3	V
Continuous drain-source diode forward current	I _S ^①	dis/dt = 100A/μs, I _S = 30A, V _{DD} = 30V	-	-	180	A
Pulsed drain-source diode forward current	I _{SM} ^{①②}		-	-	720	A
Reverse recovery time	trr		-	78	-	ns
Reverse recovery charge	Qrr		-	138	-	nC

Notes:

1. T_C=25°C.

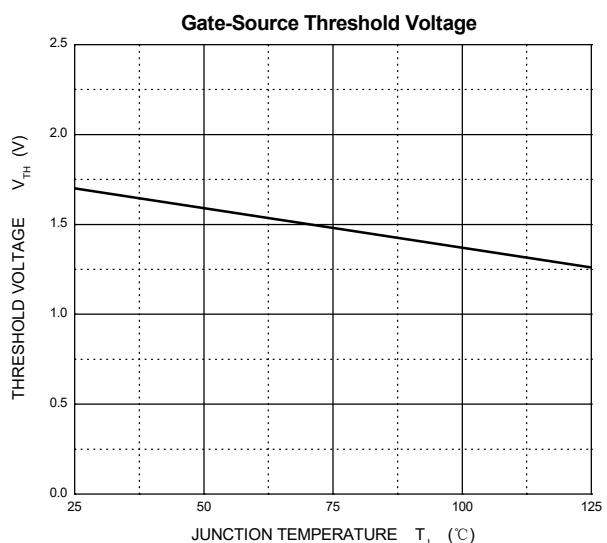
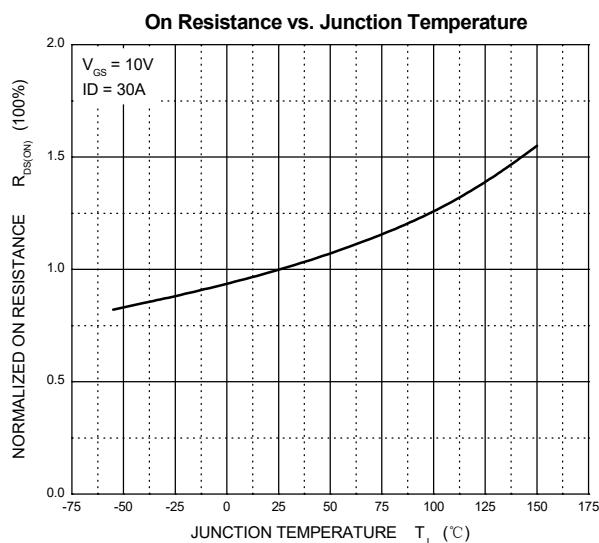
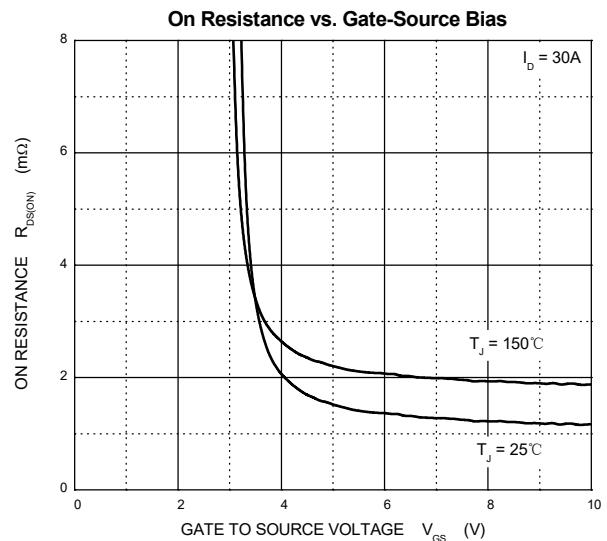
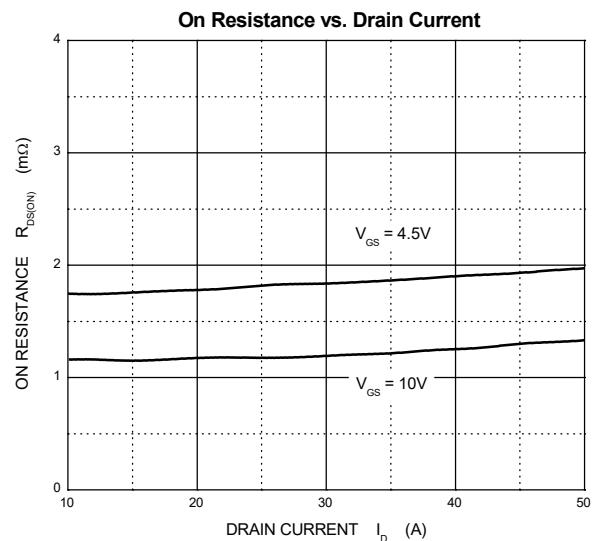
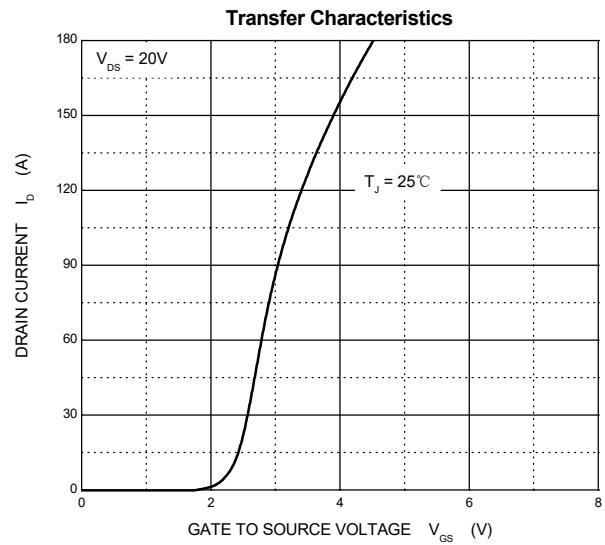
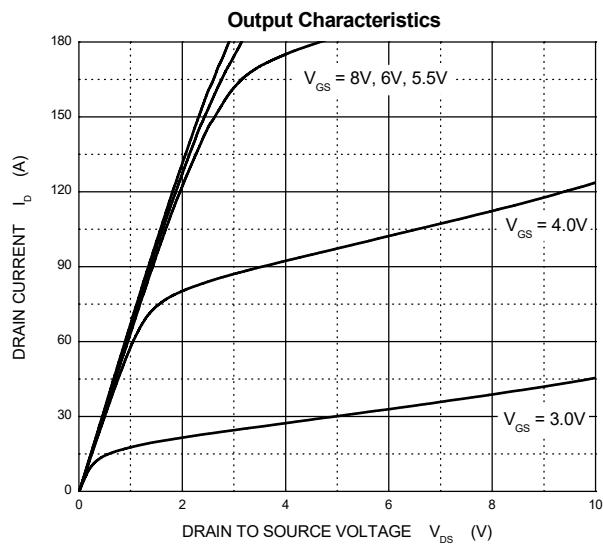
2. Limited only by maximum temperature allowed.

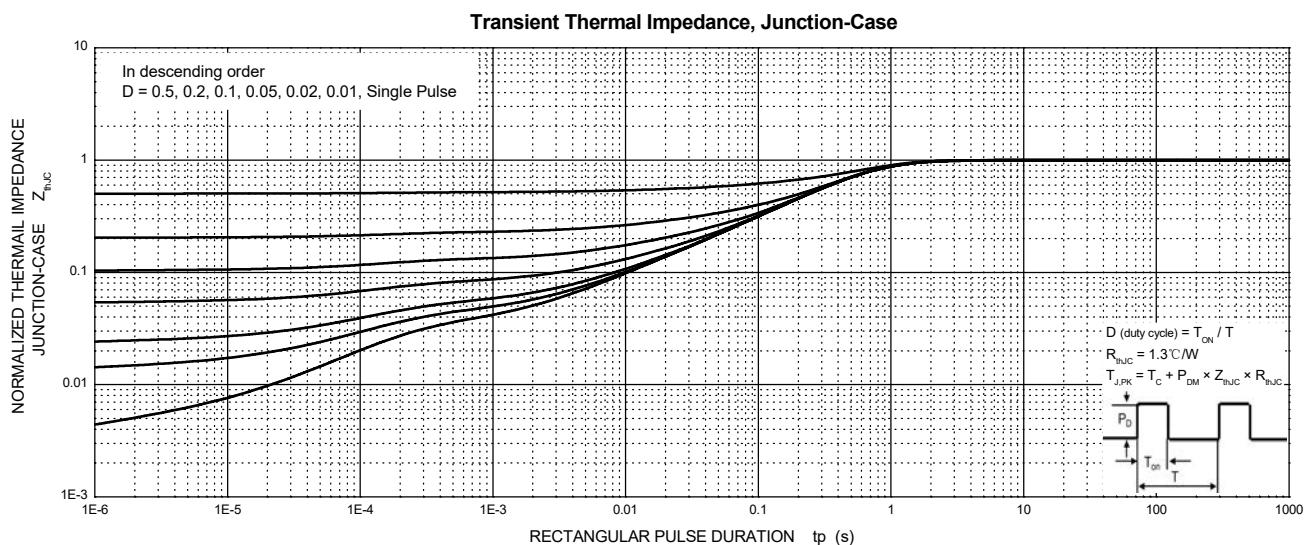
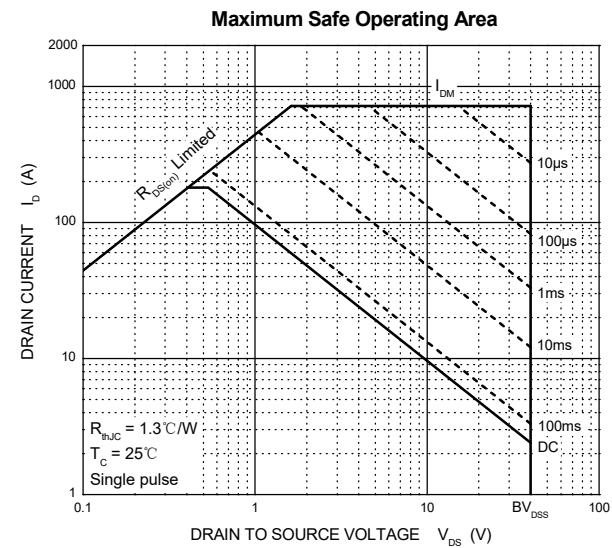
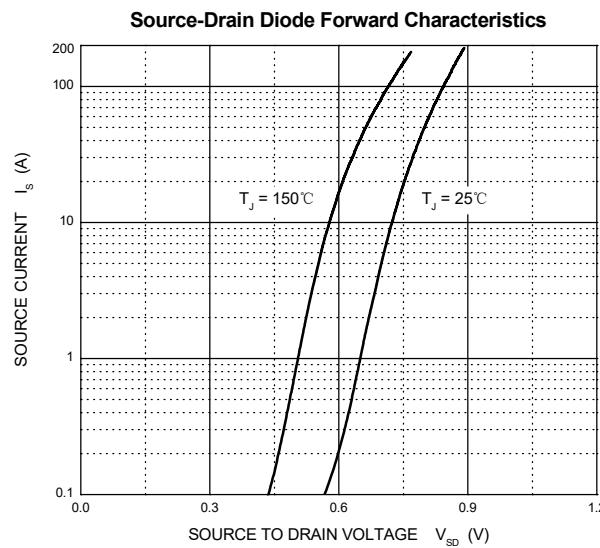
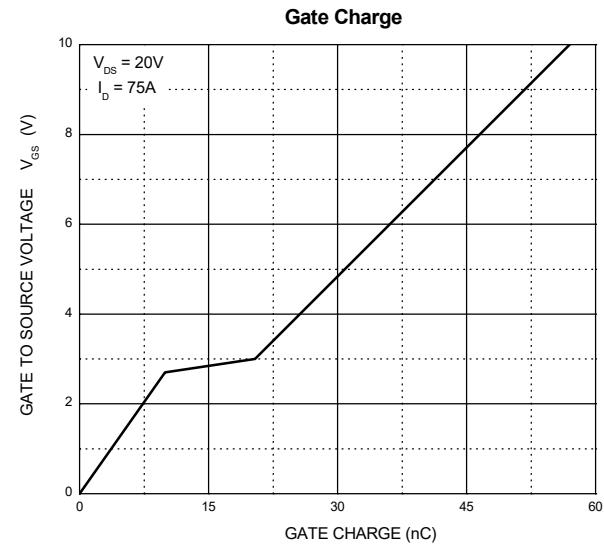
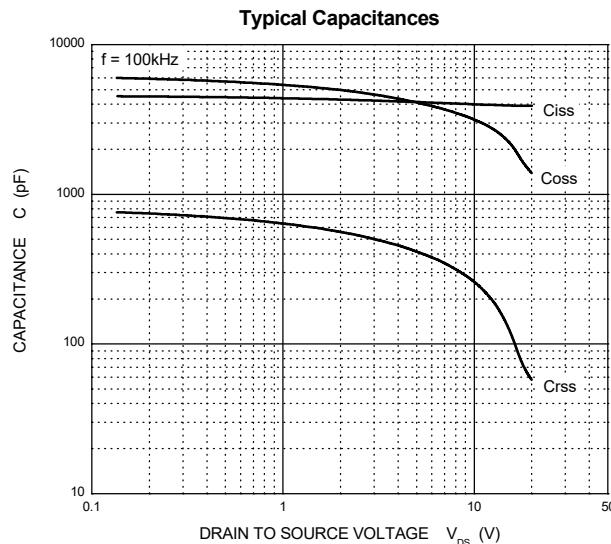
3. V_{DD}=20V, V_{GS}=10V, L=0.5mH, R_g=25Ω Starting T_J= 25°C.

4. Pulse Test : Pulse Width≤380μs, duty cycle ≤2%.

5. Device mounted on 1 in² FR-4 board with 2oz. single-sided Copper, in a still air environment with T_A=25 °C.

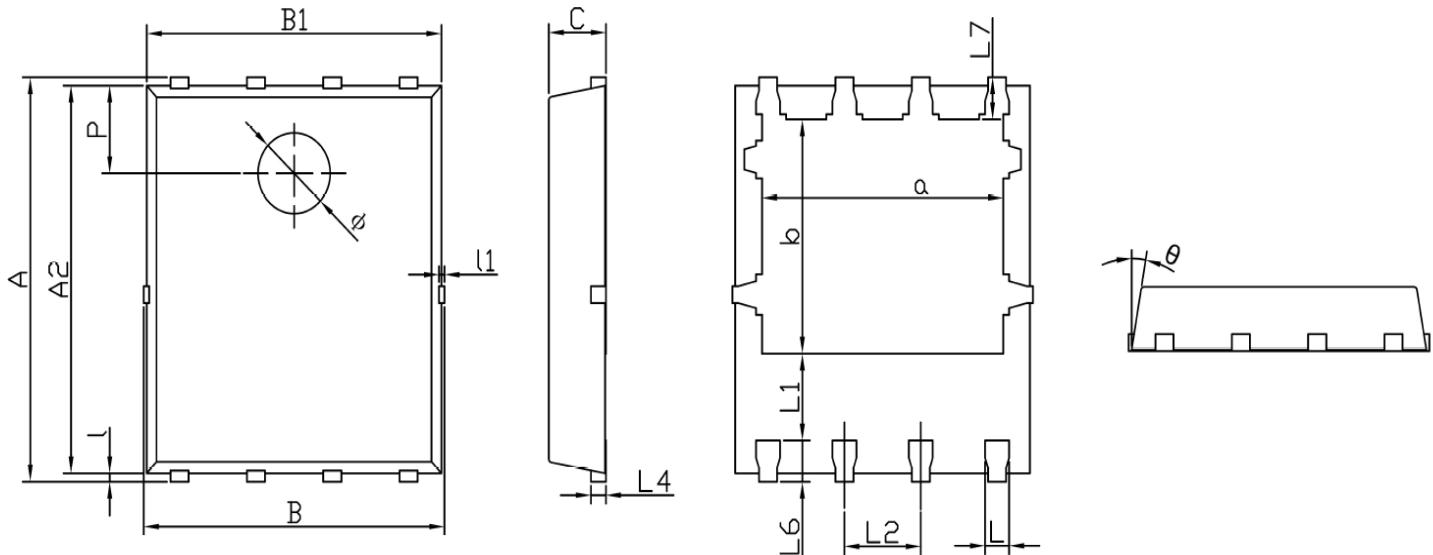
Typical Characteristic Curves





Package Outline

PDFN5x6-8L Dimensions in mm



Symbol	Dimensions		Symbol	Dimensions	
	Min.	Max.		Min.	Max.
A	5.90	6.10	L1	1.10	-
a	3.91	4.11	I1	-	0.10
A2	5.70	5.80	L2	1.17	1.37
B	4.90	5.10	L4	0.21	0.34
b	3.375	3.575	L6	0.51	0.71
B1	4.80	5.00	L7	0.51	0.71
C	0.90	1.00	P	1.15	1.45
L	0.30	0.50	θ	8°	12°
I	0.06	0.20	φ	1.10	1.30

Contact Information

TANI website: <http://www.tanisemi.com> Email:tani@tanisemi.com

For additional information, please contact your local Sales Representative.



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Product Specification Statement

The product specification aims to provide users with a reference regarding various product parameters, performance, and usage. It presents certain aspects of the product's performance in graphical form and is intended solely for users to select product and make product comparisons, enabling users to better understand and evaluate the characteristics and advantages of the product. It does not constitute any commitment, warranty, or guarantee.

The product parameters described in the product specification are numerical values, characteristics, and functions obtained through actual testing or theoretical calculations of the product in an independent or ideal state. Due to the complexity of product applications and variations in test conditions and equipment, there may be slight fluctuations in parameter test values. TANI shall not guarantee that the actual performance of the product when installed in the customer's system or equipment will be entirely consistent with the product specification, especially concerning dynamic parameters. It is recommended that users consult with professionals for product selection and system design. Users should also thoroughly validate and assess whether the actual parameters and performance when installed in their respective systems or equipment meet their requirements or expectations. Additionally, users should exercise caution in verifying product compatibility issues, and TANI assumes no responsibility for the application of the product. TANI strives to provide accurate and up-to-date information to the best of our ability. However, due to technical, human, or other reasons, TANI cannot guarantee that the information provided in the product specification is entirely accurate and error-free. TANI shall not be held responsible for any losses or damages resulting from the use or reliance on any information in these product specifications.

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Users are advised to pay attention to the parameter limit values specified in the product specification and maintain a certain margin in design or application to ensure that the product does not exceed the parameter limit values defined in the product specification. This precaution should be taken to avoid exceeding one or more of the limit values, which may result in permanent irreversible damage to the product, ultimately affecting the quality and reliability of the system or equipment.

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