

Product Summary

- $V_{DS} = 100V, I_D = 30A$
- $R_{DS(on)} < 17m\Omega @ V_{GS} = 10V$
- $R_{DS(on)} < 21m\Omega @ V_{GS} = 4.5V$

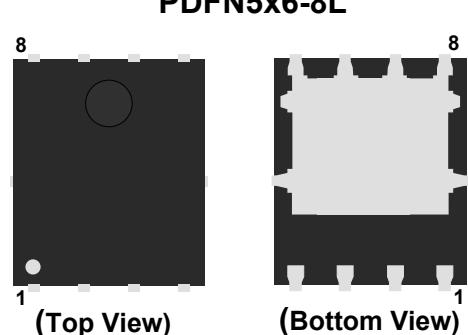
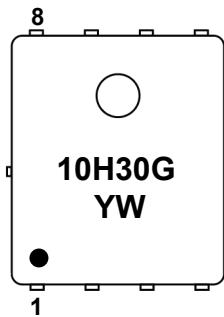
Features

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

Application

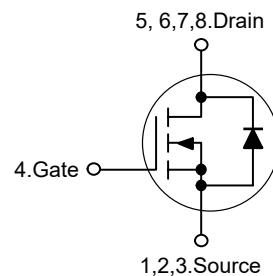
- Isolated DC
- Motor control
- Synchronous-rectification

Marking Code



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

Schematic Diagram



Absolute Maximum Ratings

Ratings at 25°C case temperature unless otherwise specified.

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_c = 25^\circ C$	Continuous Drain Current ^{1,6}	32	A
$I_D @ T_c = 100^\circ C$	Continuous Drain Current ^{1,6}	20	A
I_{DM}	Pulsed Drain Current ²	90	A
EAS	Single Pulse Avalanche Energy ³	45	mJ
I_{AS}	Avalanche Current	30	A
$P_D @ T_c = 25^\circ C$	Total Power Dissipation ⁴	37.9	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
R_{eJA}	Thermal Resistance Junction-Ambient ¹ ($t \leq 10s$)	---	25	°C/W
	Thermal Resistance Junction-Ambient ¹	---	55	°C/W
R_{eJC}	Thermal Resistance Junction-Case ¹	---	3.3	°C/W

Electrical Characteristics

($T_J=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$\text{V}_{\text{GS}}=0\text{V}$, $\text{I}_{\text{D}}=250\text{uA}$	100	---	---	V
$\text{R}_{\text{DS(ON)}}$	Static Drain-Source On-Resistance ²	$\text{V}_{\text{GS}}=10\text{V}$, $\text{I}_{\text{D}}=10\text{A}$	---	15.5	20	$\text{m}\Omega$
	Static Drain-Source On-Resistance ²	$\text{V}_{\text{GS}}=4.5\text{V}$, $\text{I}_{\text{D}}=10\text{A}$	---	21	30	
$\text{V}_{\text{GS(th)}}$	Gate Threshold Voltage	$\text{V}_{\text{GS}}=\text{V}_{\text{DS}}$, $\text{I}_{\text{D}}=250\text{uA}$	1.2	1.8	2.2	V
I_{DSS}	Drain-Source Leakage Current	$\text{V}_{\text{DS}}=80\text{V}$, $\text{V}_{\text{GS}}=0\text{V}$, $\text{T}_J=25^\circ\text{C}$	---	---	1	uA
		$\text{V}_{\text{DS}}=80\text{V}$, $\text{V}_{\text{GS}}=0\text{V}$, $\text{T}_J=55^\circ\text{C}$	---	---	5	
I_{GSS}	Gate-Source Leakage Current	$\text{V}_{\text{GS}}=\pm 20\text{V}$, $\text{V}_{\text{DS}}=0\text{V}$	---	---	± 100	nA
R_g	Gate Resistance	$\text{V}_{\text{DS}}=0\text{V}$, $\text{V}_{\text{GS}}=0\text{V}$, $f=1\text{MHz}$	---	1	---	Ω
Q_g	Total Gate Charge (10V)	$\text{V}_{\text{DS}}=50\text{V}$, $\text{V}_{\text{GS}}=10\text{V}$, $\text{I}_{\text{D}}=10\text{A}$	---	17.9	---	nC
Q_{gs}	Gate-Source Charge		---	2.8	---	
Q_{gd}	Gate-Drain Charge		---	5.2	---	
$\text{T}_{\text{d(on)}}$	Turn-On Delay Time	$\text{V}_{\text{DD}}=30\text{V}$, $\text{V}_{\text{GS}}=10\text{V}$, $\text{R}_g=6\Omega$, $\text{I}_{\text{D}}=1\text{A}$	---	13	---	ns
T_r	Rise Time		---	6	---	
$\text{T}_{\text{d(off)}}$	Turn-Off Delay Time		---	30	---	
T_f	Fall Time		---	29	---	
C_{iss}	Input Capacitance	$\text{V}_{\text{DS}}=50\text{V}$, $\text{V}_{\text{GS}}=0\text{V}$, $f=1\text{MHz}$	---	849	---	pF
C_{oss}	Output Capacitance		---	185	---	
Crss	Reverse Transfer Capacitance		---	8	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_s	Continuous Source Current ^{1,5,6}	$\text{V}_{\text{G}}=\text{V}_{\text{D}}=0\text{V}$, Force Current	---	---	32	A
V_{SD}	Diode Forward Voltage ²	$\text{V}_{\text{GS}}=0\text{V}$, $\text{I}_{\text{S}}=1\text{A}$, $\text{T}_J=25^\circ\text{C}$	---	---	1.2	V

Note :

- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2.The data tested by pulsed , pulse width $\leq 300\text{us}$, duty cycle $\leq 2\%$
- 3.The EAS data shows Max. rating . The test condition is $\text{V}_{\text{DD}}=25\text{V}$, $\text{V}_{\text{GS}}=10\text{V}$, $\text{L}=0.1\text{mH}$, $\text{I}_{\text{AS}}=30\text{A}$
- 4.The power dissipation is limited by 150°C junction temperature
- 5.The data is theoretically the same as I_{D} and I_{DM} , in real applications , should be limited by total power dissipation.
- 6.The maximum current rating is package limited.

Typical Characteristic Curves

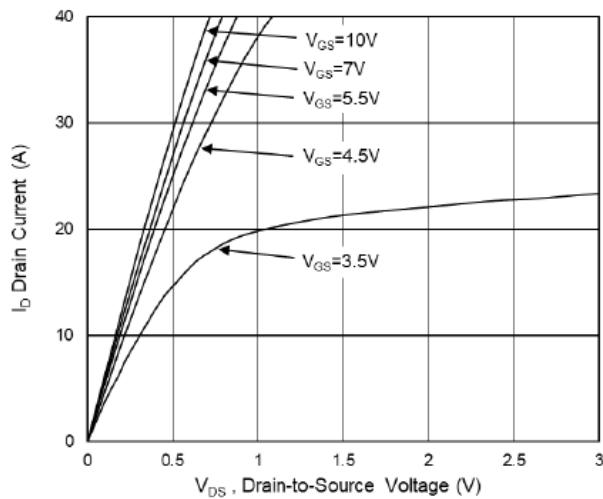


Fig.1 Typical Output Characteristics

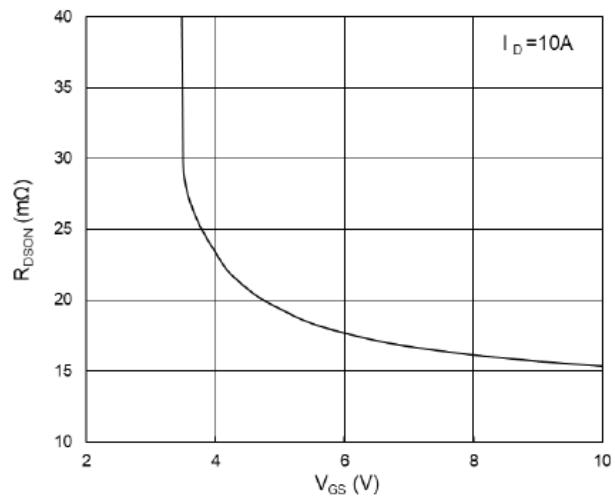


Fig.2 On-Resistance vs G-S Voltage

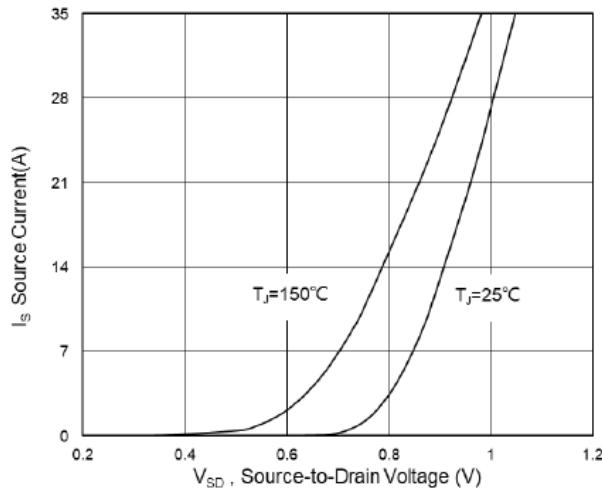


Fig.3 Source-Drain Forward Characteristics

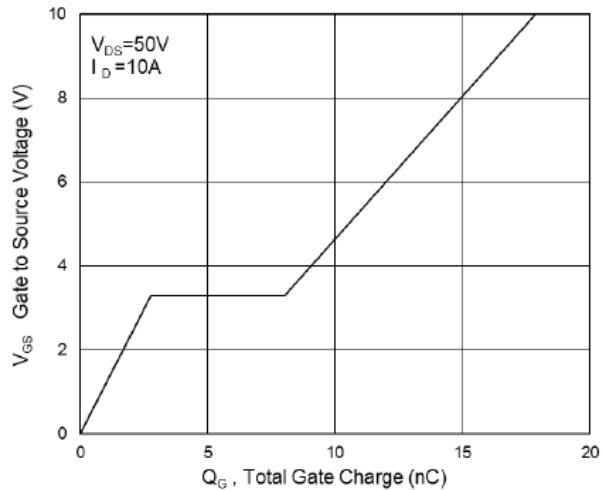


Fig.4 Gate-Charge Characteristics

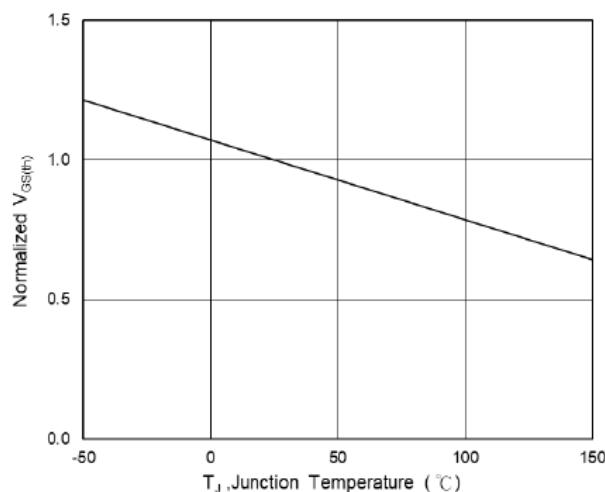


Fig.5 Normalized V_GS(th) vs T_J

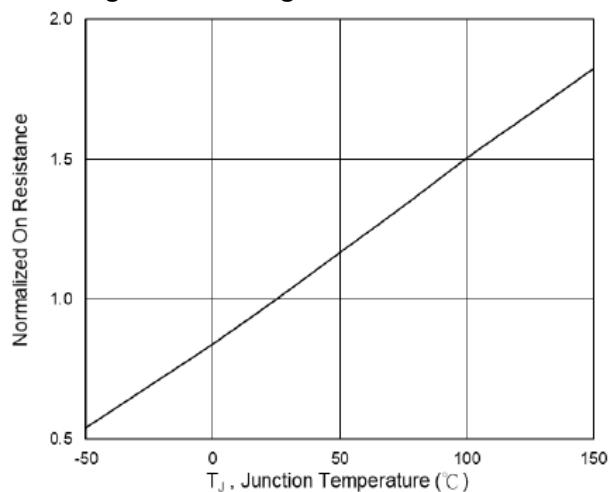
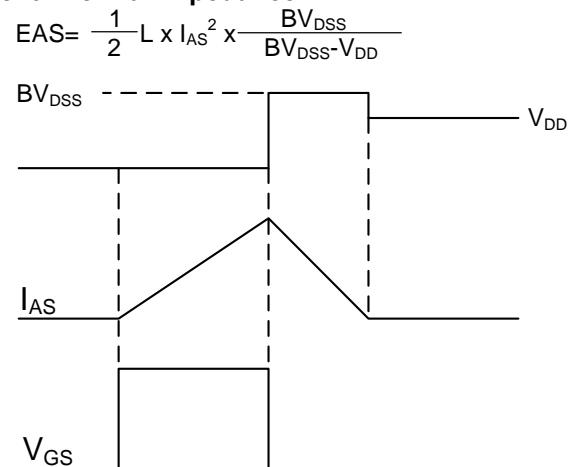
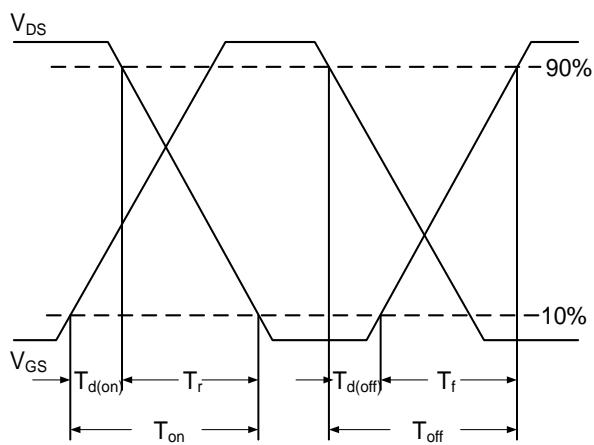
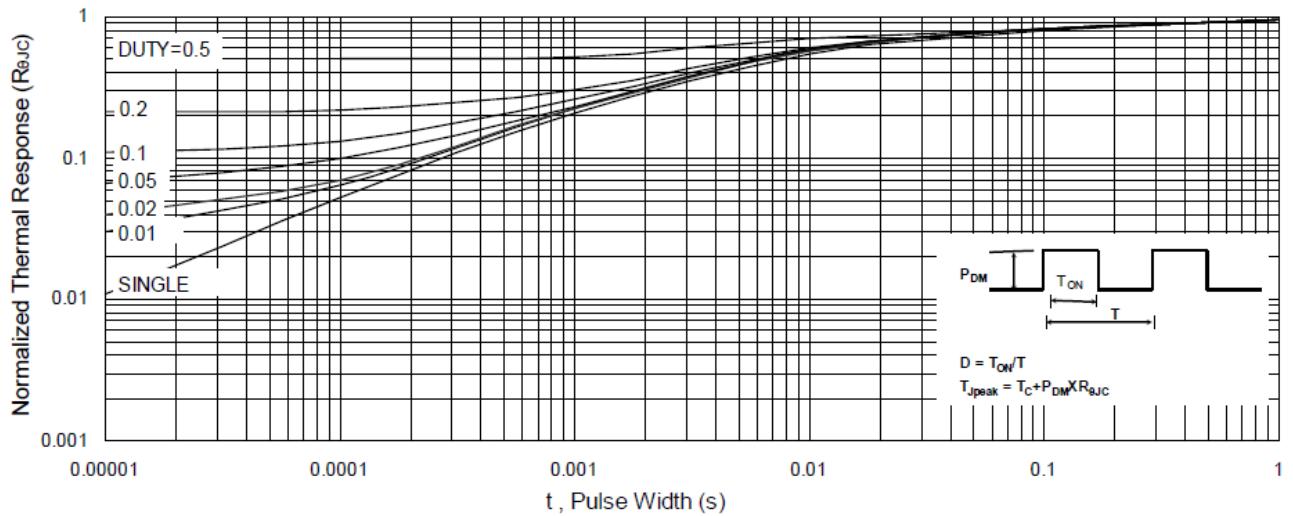
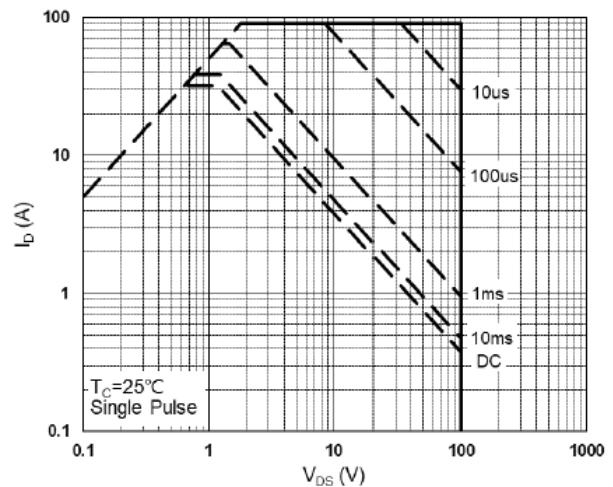
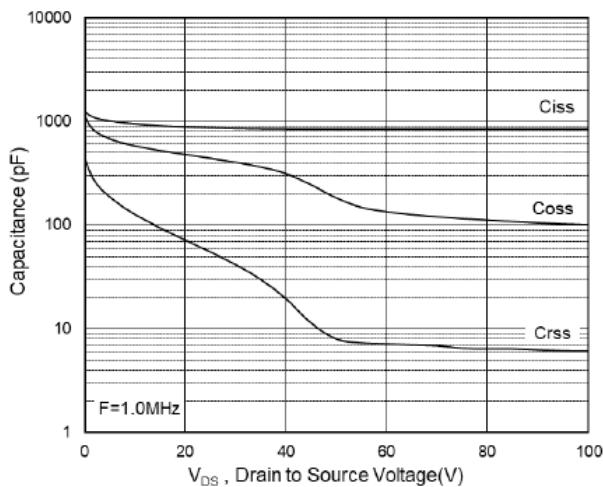
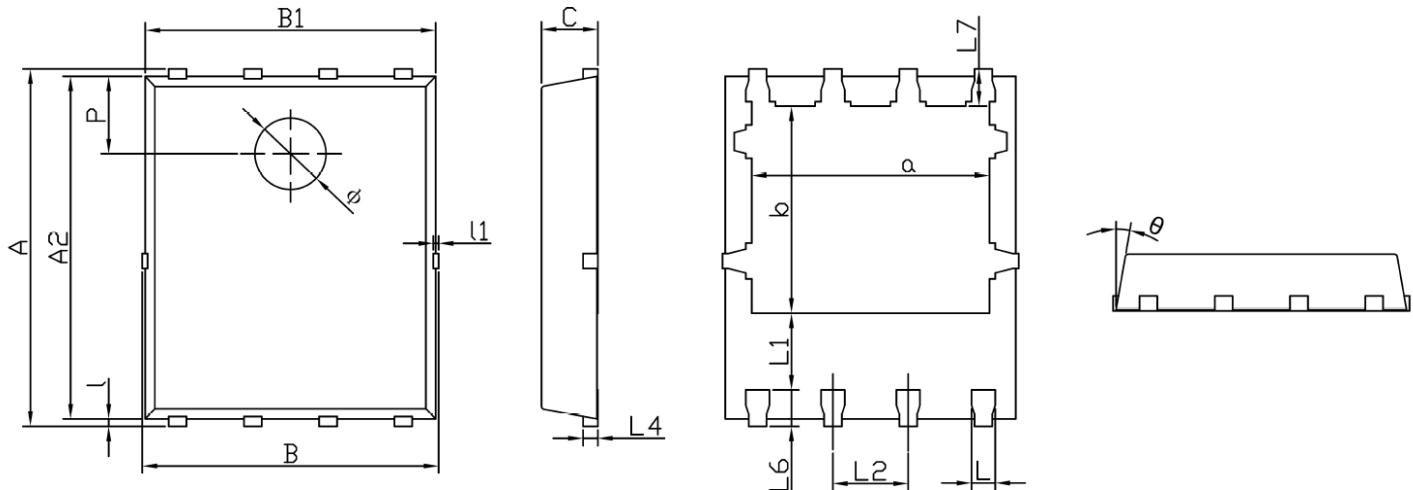


Fig.6 Normalized R_DS(on) vs T_J



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.



® is registered trademarks of TANI Corporation.

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.

TANI reserves the right to revise or update the product specification and the products at any time without prior notice, and the user's continued use of the product specification is considered an acceptance of these revisions and updates. Prior to purchasing and using the product, users should verify the above information with TANI to ensure that the product specification is the most current, effective, and complete. If users are particularly concerned about product parameters, please consult TANI in detail or request relevant product test reports. Any data not explicitly mentioned in the product specification shall be subject to separate agreement.

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.

The design of the product is intended to meet civilian needs and is not guaranteed for use in harsh environments or precision equipment. It is not recommended for use in systems or equipment such as medical devices, aircraft, nuclear power, and similar systems, where failures in these systems or equipment could reasonably be expected to result in personal injury. TANI shall assume no responsibility for any consequences resulting from such usage.

Users should also comply with relevant laws, regulations, policies, and standards when using the product specification. Users are responsible for the risks and liabilities arising from the use of the product specification and must ensure that it is not used for illegal purposes. Additionally, users should respect the intellectual property rights related to the product specification and refrain from infringing upon any third-party legal rights. TANI shall assume no responsibility for any disputes or controversies arising from the above-mentioned issues in any form.