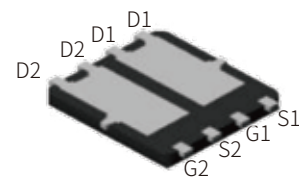


FEATURES

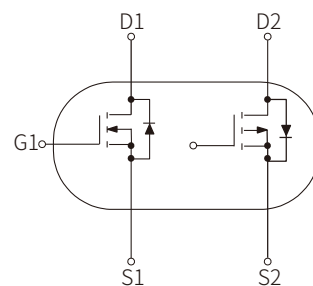
- Improved dv/dt Capability, High Ruggedness
- Maximum Junction Temperature Range (150°C)

APPLICATION

- DC Fan
- Brushless motor
- Optimized for Power Management Applications for Portable Products, such as H-bridge, Inverters



PDFN3×3-8L



Schematic Symbol

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

ABSOLUTE MAXIMUM RATINGS($T_a=25^\circ\text{C}$)

Parameter	Symbol	Value		Unit
		N-channel	P-channel	
Drain-Source Breakdown Voltage	V_{DS}	30	-30	V
Continuous Drain current $T_c=25^\circ\text{C}$ (Note2)	I_D	15	-11	A
Pulse Drain Current Tested (Silicon Limit) $T_c=25^\circ\text{C}$ (Note1)	I_{DM}	60	-44	A
Gate-Source Voltage	V_{GS}	± 20	± 20	V
Diode Continuous Forward Current $T_c=25^\circ\text{C}$	I_S	15	-11	V
Maximum Power Dissipation $T_c=25^\circ\text{C}$	P_D	15		W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 ~ +150		$^\circ\text{C}$
Thermal Resistance Junction—to—Case (Note2)	$R_{\theta JC}$	8.3		$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS($T_a=25^{\circ}\text{C}$)

N-Channel

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
OFF Characteristics						
Drain-source Breakdown Voltage	BV _{DSS}	V _{GS} =0V,I _D =250μA	30			V
Drain Leakage Curren	I _{DSS}	V _{DS} =30V,V _{GS} =0V			1	μA
Gate Leakage Current	I _{GSS}	V _{GS} =±20V,V _{DS} =0V			±100	nA
ON Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _{DS} =250μA	1.2		2.2	V
Drain-source on-state resistance (Note3)	R _{DS(on)}	V _{GS} =10V,I _D =10A		16	23	mΩ
		V _{GS} =4.5V,I _D =6A		24	36	
Dynamic Characteristics (Note4)						
Input Capacitance	C _{iss}	V _{DS} =15V,V _{GS} =0V,f=1.0MHz		517		pF
Output Capacitance	C _{oss}			63		
Reverse Transfer Capacitance	C _{rss}			51		
Switching Characteristics(Note4)						
Turn-On Delay Time	t _{d(on)}	V _{DD} =15V,I _D =5A V _{GS} =10V,R _G =3Ω		3.9		ns
Turn-On Rise Time	t _r			5.6		
Turn-Off Delay Time	t _{d(off)}			31		
Turn-Off Fall Time	t _f			4.8		
Total Gate Charge	Q _g	V _{GS} =10V,V _{DS} =15V,I _D =5A		11.4		nC
Gate Source Charge	Q _{gs}			1.9		
Gate Drain Charge	Q _{gd}			3.6		
Diode Forward Voltage	V _{SD}	V _{GS} =0V,I _S =15A			1.2	V

P-Channel

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
OFF Characteristics						
Drain-source Breakdown Voltage	BV _{DSS}	V _{GS} =0V,I _D =-250μA	-30			V
Drain Leakage Curren	I _{DSS}	V _{DS} =-30V,V _{GS} =0V			-1	μA
Gate Leakage Current	I _{GSS}	V _{GS} =±20V,V _{DS} =0V			±100	nA
ON Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _{DS} =-250μA	-1.0		-2.5	V
Drain-source on-state resistance (Note3)	R _{DS(on)}	V _{GS} =-10V,I _D =-8A		25	36	mΩ
		V _{GS} =-4.5V,I _D =-5A		36	48	
Dynamic Characteristics (Note4)						
Input Capacitance	C _{iss}	V _{DS} =-15V,V _{GS} =0V,F=1.0MHz		890		pF
Output Capacitance	C _{oss}			112		
Reverse Transfer Capacitance	C _{rss}			90		
Switching Characteristics (Note4)						
Turn-On Delay Time	t _{d(on)}	V _{DD} =-15V,I _D =-5A V _{GS} =-10V,R _G =2.7Ω		4.4		ns
Turn-On Rise Time	t _r			2.2		
Turn-Off Delay Time	t _{d(off)}			37		
Turn-Off Fall Time	t _f			27		
Total Gate Charge	Q _g	V _{GS} =-10V,V _{DS} =-15V,I _D =-5A		17		nC
Gate Source Charge	Q _{gs}			2.9		
Gate Drain Charge	Q _{gd}			3.5		
Drain-source Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V,I _S =-11A			-1.2	V

NoteNoteNoteNote:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec
3. Pulse Test: pulse width ≤ 300 us, duty cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production testing.

PARAMETER CHARACTERISTIC CURVE

N-Channel

Figure 1: Power De-rating

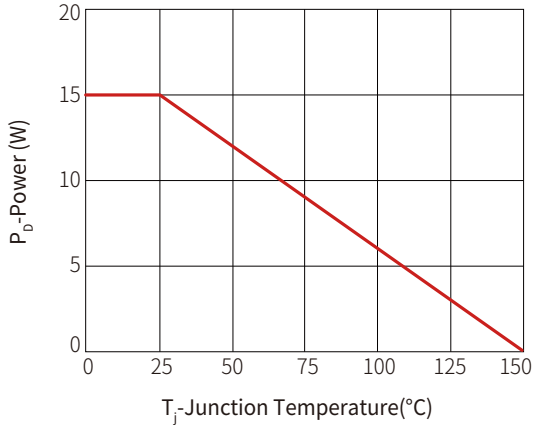


Figure 2: On-Resistance vs. Drain Current

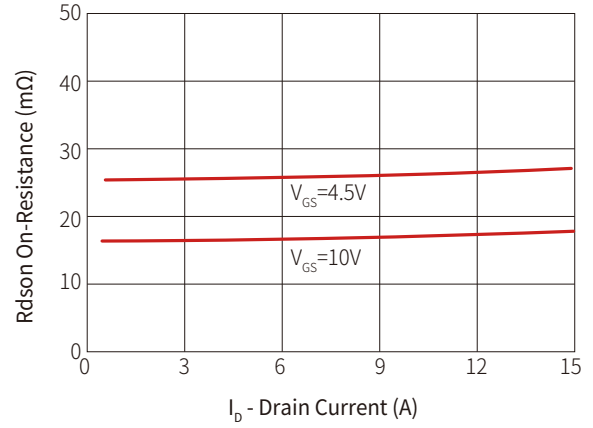


Figure 3: Rdson-Junction Temperature

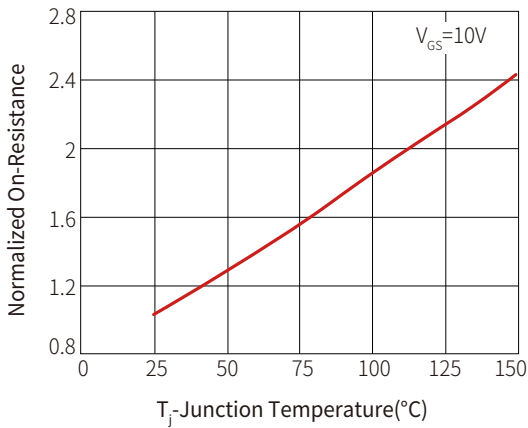


Figure 4: Output Characteristics

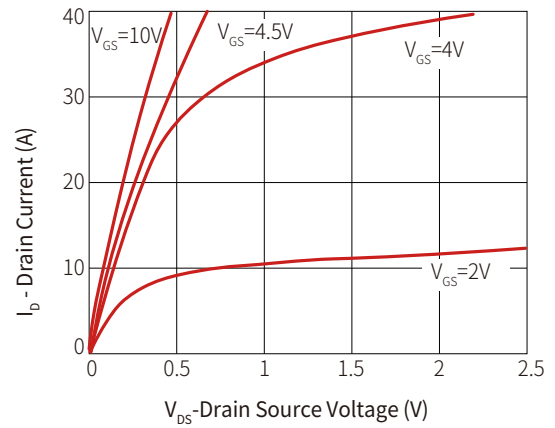


Figure 5: Capacitance vs V_{DS}

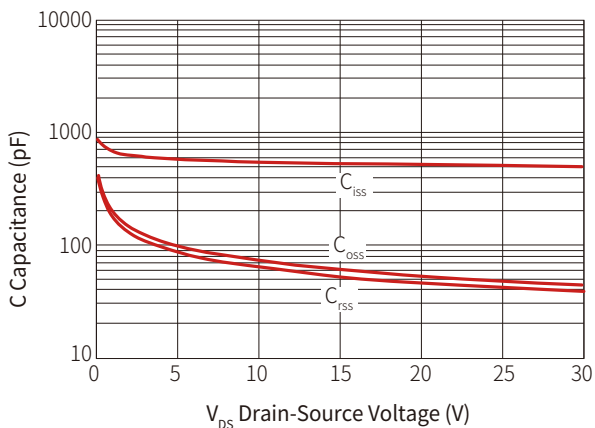


Figure 6: Gate-Charge

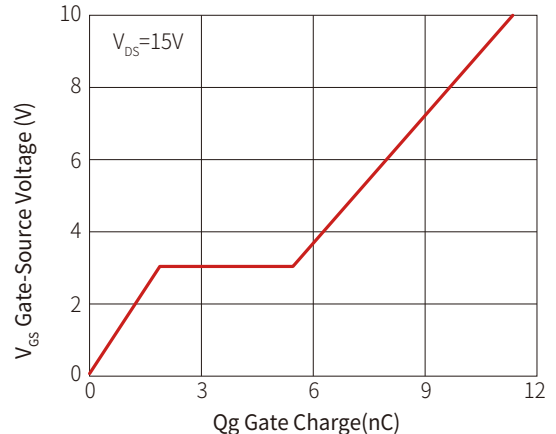
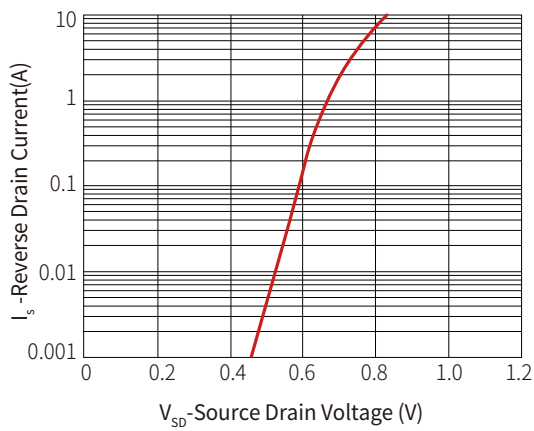
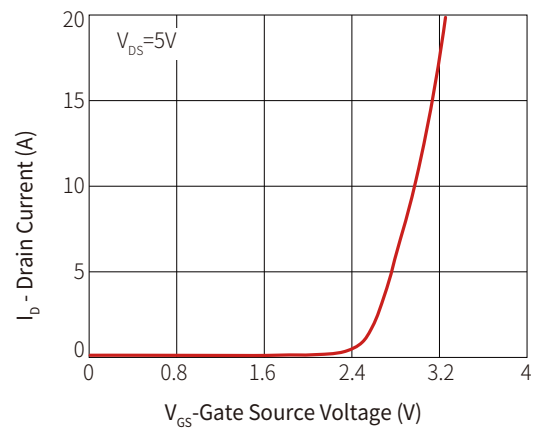
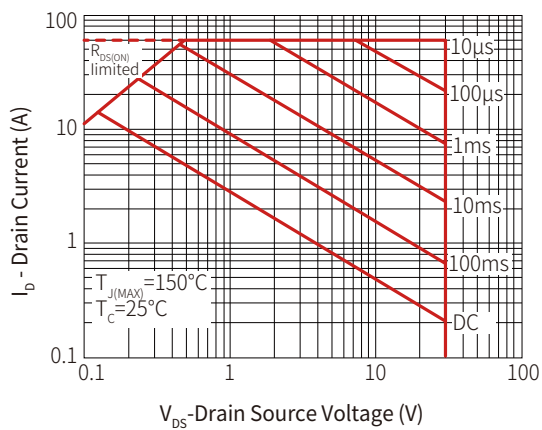
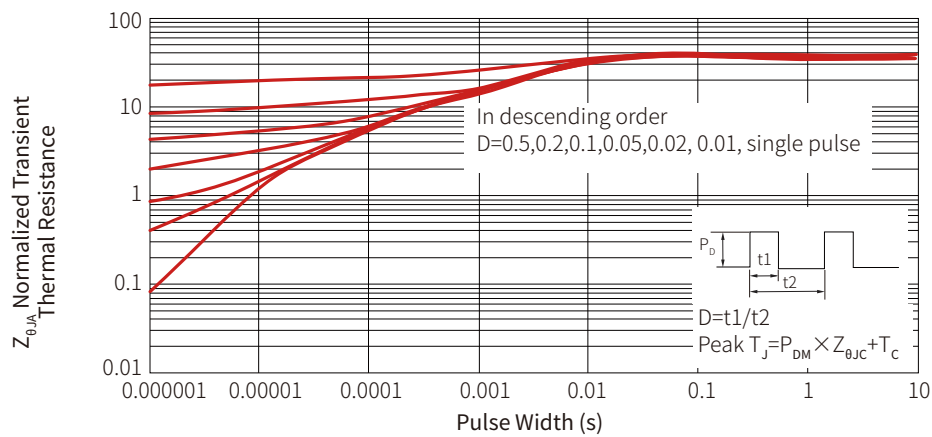


Figure 7: Typical source-Drain Diode Forward Voltage

Figure 8: Transfer Characteristics

Figure 9: Safe Operation Area

Figure 10: Normalized Maximum Transient Thermal impedance


P-Channel

Figure 1: Power De-rating

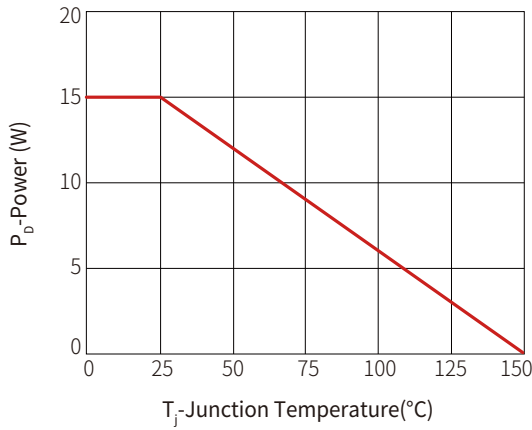


Figure 2: On-Resistance vs. Drain Current

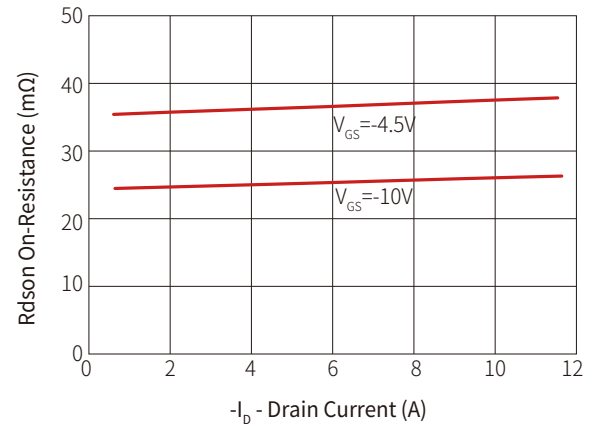


Figure 3: Rdson-Junction Temperature

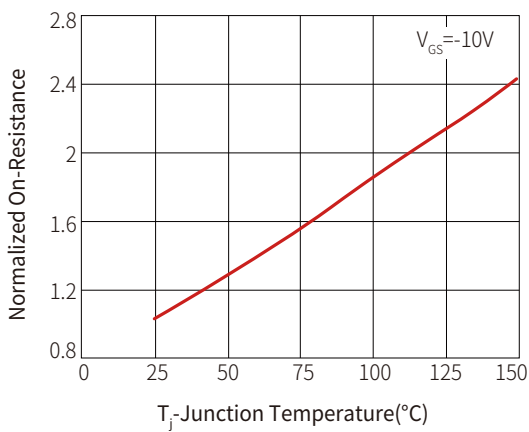


Figure 4: Output Characteristics

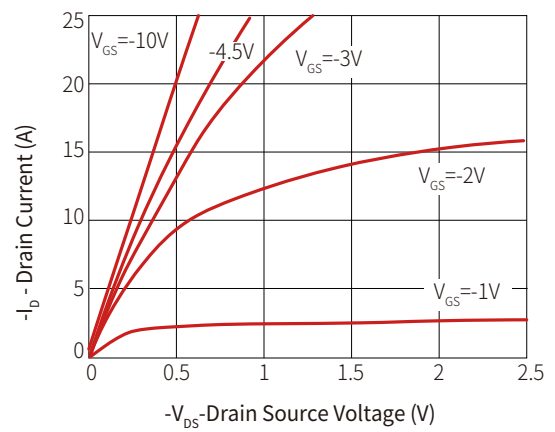


Figure 5: Capacitance vs V_{DS}

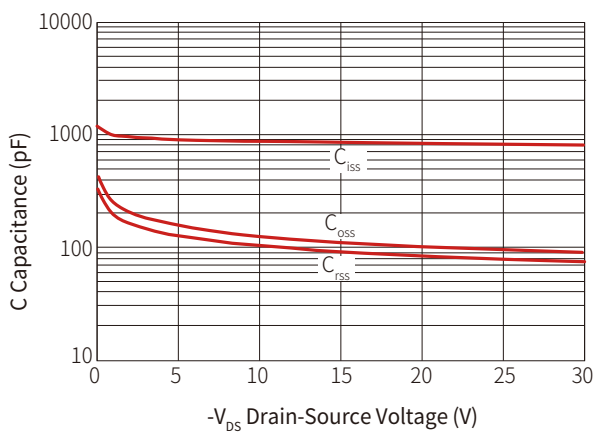


Figure 6: Gate-Charge

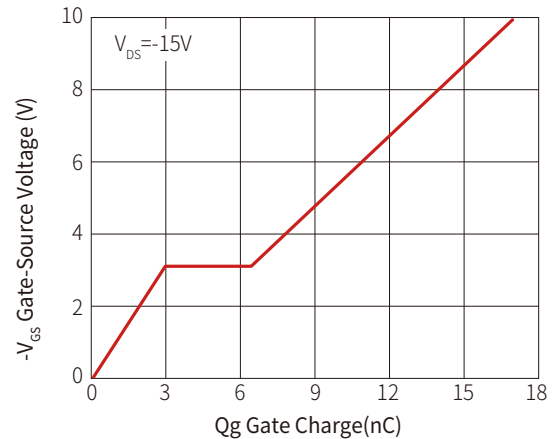
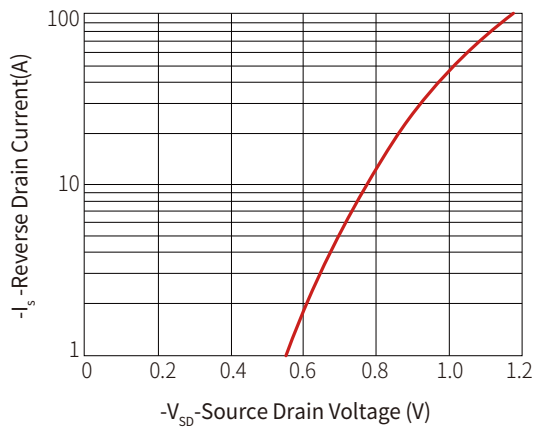
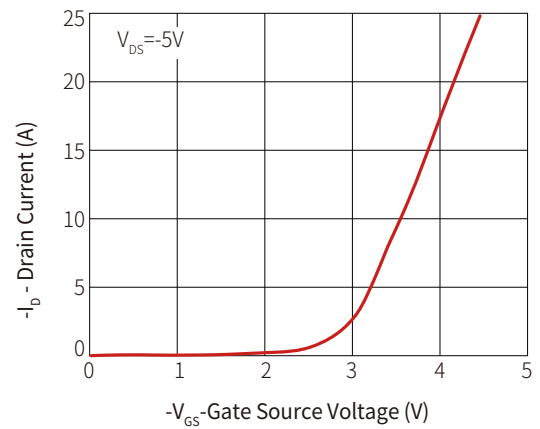
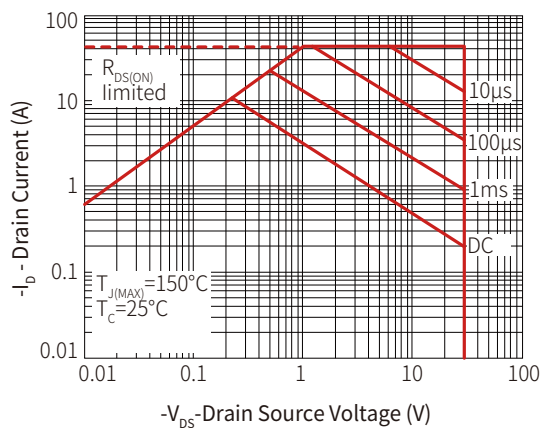
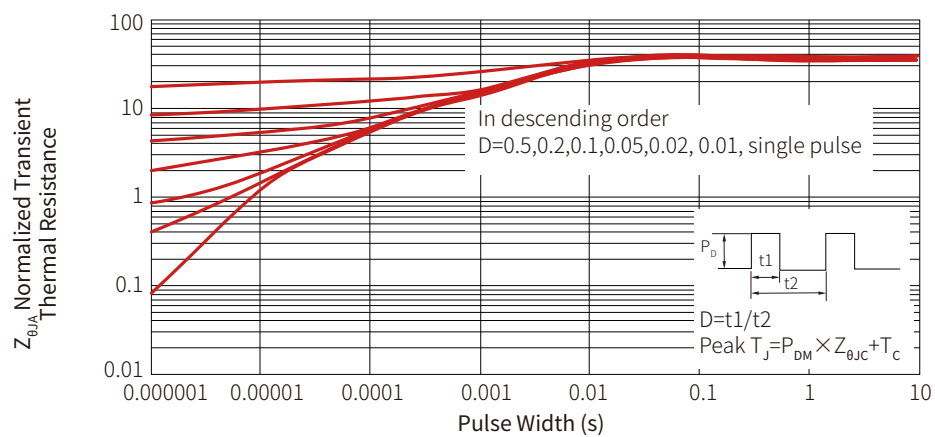
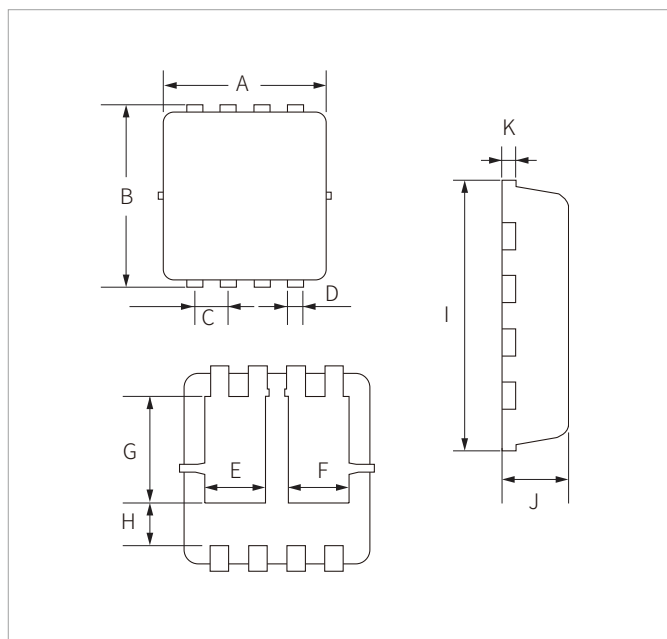


Figure 7: Typical source-Drain Diode Forward Voltage

Figure 8: Transfer Characteristics

Figure 9: Safe Operation Area

Figure 10: Normalized Maximum Transient Thermal impedance


PDFN3x3-8L PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.90	3.30	0.114	0.130
B	3.15	3.55	0.124	0.140
C	0.65		0.026	
D	0.32		0.013	
E	0.835	1.235	0.033	0.049
F	0.835	1.235	0.033	0.049
G	1.53	1.93	0.060	0.076
H	0.49	0.89	0.020	0.035
I	3.10	3.50	0.122	0.138
J	0.65	0.90	0.026	0.035
K	0.152		0.006	

ORDERING INFORMATION

Part Number	Component Package	Part Number	QTY/Reel	Reel Size
SNPM15C30Q	PDFN3×3-8L	 15C30 XXXX	5000PCS	13"

Headquarters

No.3387 Shendu Road
Pujiang I&E Park
Minhang Shanghai China
201000

Hotline

400-021-5756

Web

<https://www.semiware.com>

Sales Center

Tel: 86-21-3463-7458
Email: sales18@semiware.com

Customer Service

Tel: 86-21-5484-1001
Email: sales17@semiware.com

Technical Support

Tel: 86-21-3463-7654
Email: fae01@semiware.com

Complaint & Suggestions

Tel: 86-21-3463-7172
Ext: 8868
Email: cs03@semiware.com

By QR Code

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