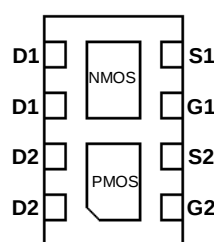
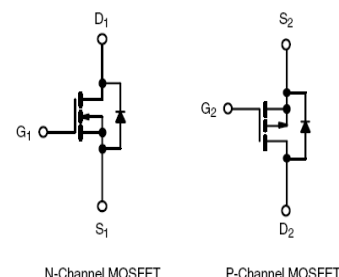


Main Product Characteristics:

	NMOS	PMOS
V_{DSS}	30V	-30V
$R_{DS(on)}$	37mohm(typ.)	68mohm(typ.)
I_D	5A	-4.5A


DFN2X3-8L

Schematic diagram

Features and Benefits:

- Advanced trench MOSFET process technology
- Special designed for buck-boost circuit, DSC, portable devices and general purpose applications
- Ultra low on-resistance with low gate charge
- 150°C operating temperature



Description:

It utilizes the latest trench processing techniques to achieve the high cell density and reduces the on-resistance with high repetitive avalanche rating. These features combine to make this design an extremely efficient and reliable device for use in buck-boost circuit, DSC, portable devices and a wide variety of others applications

Absolute max Rating:

Symbol	Parameter	Max.		Units
		N-channel	P-channel	
I_D @ TC = 25°C	Continuous Drain Current, V_{GS} @ 4.5V①	5	-4.5	A
I_D @ TC = 100°C	Continuous Drain Current, V_{GS} @ 4.5V①	4.2	-3.4	
I_{DM}	Pulsed Drain Current②	18.8	-12.5	
P_D @ TC = 25°C	Power Dissipation③	2.1	1.8	W
V_{DS}	Drain-Source Voltage	30	-30	V
V_{GS}	Gate-to-Source Voltage	± 12	± 12	V
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to + 150	-55 to + 150	°C

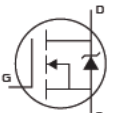
Thermal Resistance

Symbol	Characterizes	Typ.	Max.		Units
			N-channel	P-channel	
R _{θJA}	Junction-to-ambient (t ≤ 10s) ④	—	60	95	°C/W
	Junction-to-Ambient (PCB mounted, steady-state) ④	—	40	40	°C/W

Electrical Characterizes @T_A=25°C unless otherwise specified

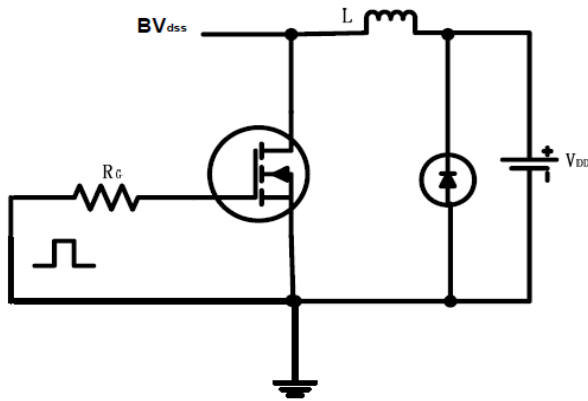
Symbol	Parameter		Min.	Typ.	Max.	Units	Conditions
V _{(BR)DSS}	Drain-to-Source breakdown voltage	N-channel	30	—	—	V	V _{GS} = 0V, I _D = 250μA
			27.5	—	—		T _J = 125°C
		P-channel	-30	—	—		V _{GS} = 0V, I _D = -250μA
			-27.5	—	—		T _J = 125°C
R _{DS(on)}	Static Drain-to-Source on-resistance	N-channel	—	37	55	mΩ	V _{GS} =4.5V, I _D = 4.8A
		P-channel	—	68	85		V _{GS} =-4.5V, I _D = -2.3A
		N-channel	—	50	90		V _{GS} =3.5V, I _D = 3.8A
		P-channel	—	84	115		V _{GS} =-3.5V, I _D = -1.8A
V _{GS(th)}	Gate threshold voltage	N-channel	0.7	1.48	2	V	V _{DS} = V _{GS} , I _D = 250μA
		P-channel	0.7	1.12	2		T _J = 125°C
		N-channel	-0.7	-1.49	-2		V _{DS} = V _{GS} , I _D = -250μA
		P-channel	-0.7	-1.26	-2		T _J = 125°C
I _{DSS}	Drain-to-Source leakage current	N-channel	—	—	1	μA	V _{DS} = 30V, V _{GS} = 0V
		P-channel	—	—	-1		V _{DS} = -30V, V _{GS} = 0V
I _{GSS}	Gate-to-Source forward leakage	N-channel	—	—	100	nA	V _{GS} = 12V
		N-channel	—	—	-100		V _{GS} = -12V
		P-channel	—	—	100		V _{GS} = 12V
		P-channel	—	—	-100		V _{GS} = -12V

Source-Drain Ratings and Characteristics

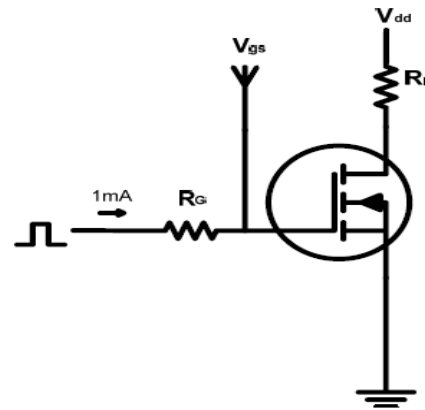
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I _S	Continuous Source Current (Body Diode)	—	—	5	A	MOSFET symb showing the integral reverse p-n junction diode. 
		—	—	-4.5		
I _{SM}	Pulsed Source Current (Body Diode)	—	—	18.8	A	
		—	—	-12.5		
V _{SD}	Diode Forward Voltage	—	0.82	1.2	V	I _S =2.4A, V _{GS} =0V
		—	-0.84	-1.2		I _S =-1.5A, V _{GS} =0V

Test circuits and Waveforms

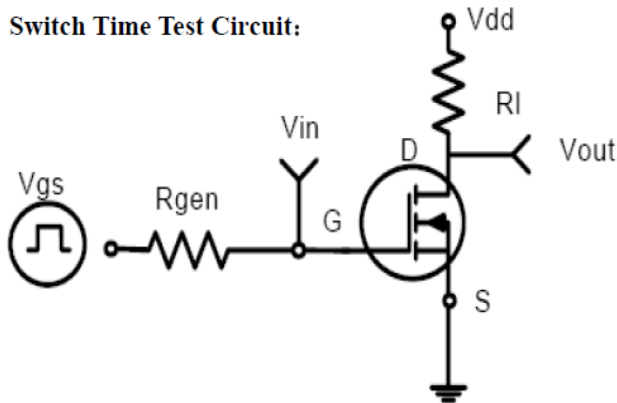
EAS test circuits:



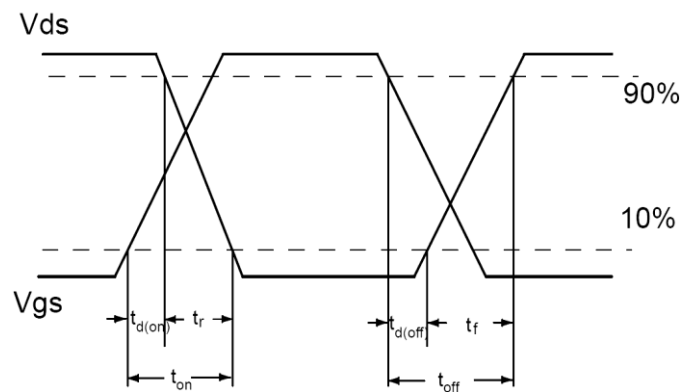
Gate charge test circuit:



Switch Time Test Circuit:



Switch Waveforms:

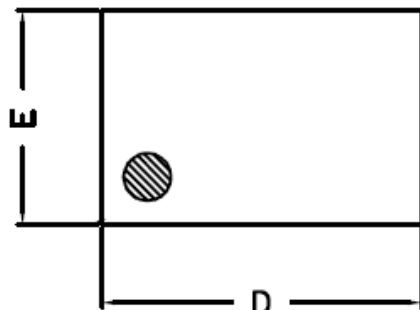
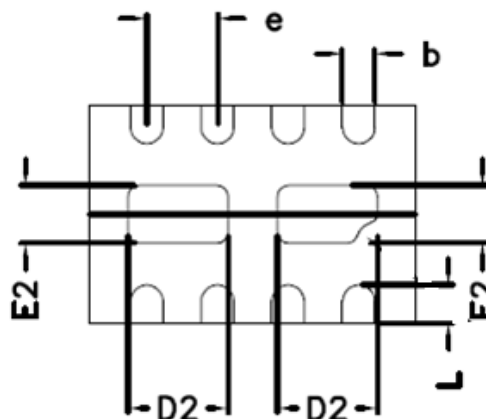
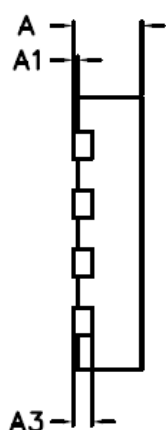


Notes:

- ① The maximum current rating is limited by bond-wires.
- ② Repetitive rating; pulse width limited by max. junction temperature.
- ③ The power dissipation P_D is based on max. junction temperature, using junction-to-ambient thermal resistance.
- ④ The value of $R_{\theta JA}$ is measured with the device mounted on 1in 2 FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$

Mechanical Data:

DFN2X3-8L


Top View

Bottom View

Side View
COMMON DIMENSIONS(MM)

PKG.	W:VERY VERY THIN		
REF.	MIN.	NOM.	MAX.
A	0.70	0.75	0.80
A1	0.00	—	0.05
A3	0.2 REF.		
D	2.95	3.00	3.05
E	1.95	2.00	2.05
b	0.25	0.30	0.35
L	0.25	0.35	0.45
D2	0.77	0.92	1.02
E2	0.38	0.53	0.63
e	0.65 BCS.		

NOTES:

1. All dimensions are in millimeters.
2. Tolerance $\pm 0.10\text{mm}$ (4 mil) unless otherwise specified
3. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 5 mils.
4. Dimension L is measured in gauge plane.
5. Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.

Ordering and Marking Information**Device Marking: 3056C**

Package (Available)
DFN2X3-8L
Operating Temperature Range
C : -55 to 150 °C

Devices per Unit

Package Type	Units/ Tube	Tubes/ Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
DFN2*3-8L	3000pcs	10pcs	30000pcs	4pcs	120000pcs

ATTENTION:

- Any and all Silikron products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your Silikron representative nearest you before using any Silikron products described or contained herein in such applications.
- Silikron assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all Silikron products described or contained herein.
- Specifications of any and all Silikron products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.
- Silikron Semiconductor CO.,LTD. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.
- In the event that any or all Silikron products(including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.
- No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of Silikron Semiconductor CO.,LTD.
- Information (including circuit diagrams and circuit parameters) herein is for example only ; it is not guaranteed for volume production. Silikron believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.
- Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the Silikron product that you intend to use.
- This catalog provides information as of Dec, 2008. Specifications and information herein are subject to change without notice.

Customer Service**Worldwide Sales and Service:**

Sales@silikron.com

Technical Support:

Technical@silikron.com

Suzhou Silikron Semiconductor Corp.

Building 11A Suchun Industrial Square, 428# Xinglong Street, Suzhou P.R. China

TEL: (86-512) 62560688

FAX: (86-512) 65160705

E-mail: Sales@silikron.com