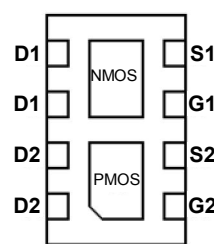
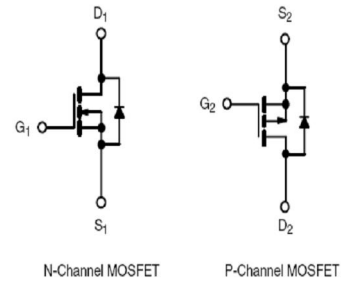


Main Product Characteristics

	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
- Lead free product



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	Characteristics	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 Characteristics @T_A=25°C unless otherwise specified

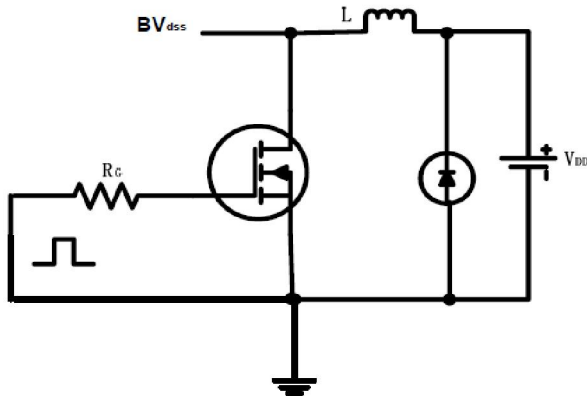
Symbol	Parameter		Min.	Typ.	Max.	Units	Conditions
V _{(BR)DSS}	Drain-to-Source breakdown voltage	N-channel	30	—	—	V	V _{GS} = 0V, I _D = 250μA
			27.5	—	—		T _J = 125°C
		P-channel	-30	—	—		V _{GS} = 0V, I _D = -250μA
			-27.5	—	—		T _J = 125°C
R _{DS(on)}	Static Drain-to-Source on-resistance	N-channel	—	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

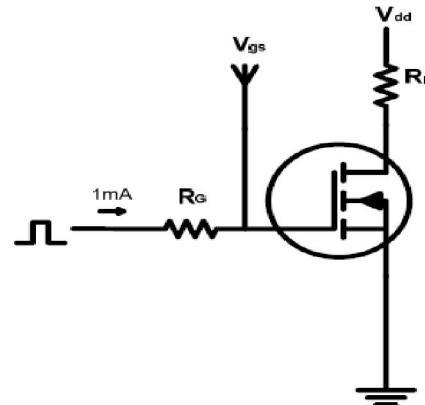
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I _S	Continuous Source Current (Body Diode)	—	—	5	A	MOSFET symb showing the integral reverse p-n junction diode.
		—	—	-4.5		
I _{SM}	Pulsed Source Current (Body Diode)	—	—	18.8	A	
		—	—	-12.5		
V _{SD}	Diode Forward Voltage	—	0.82	1.2	V	I _S =2.4A, V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

Test Circuits and Waveforms

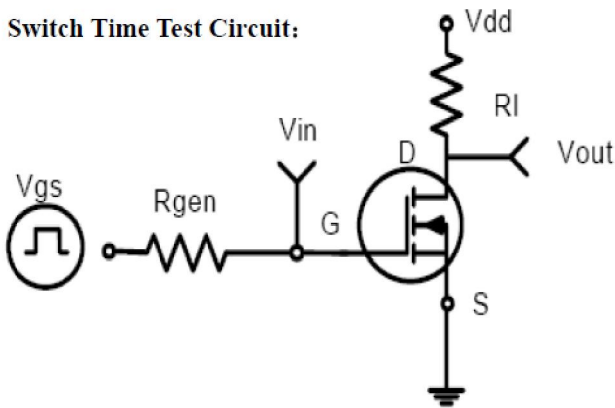
EAS test circuits:



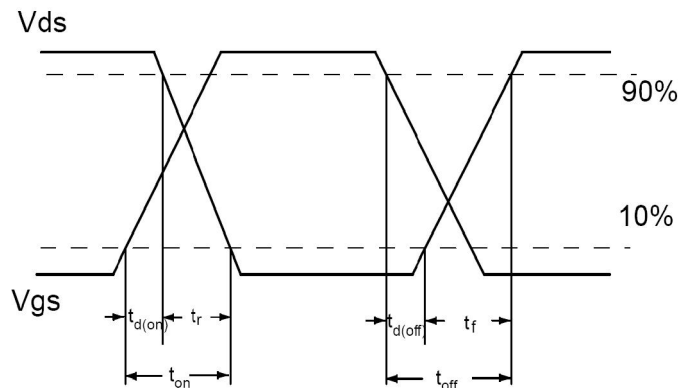
Gate charge test circuit:



Switch Time Test Circuit:



Switch Waveforms:

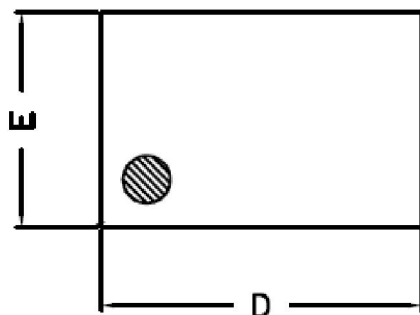


Notes:

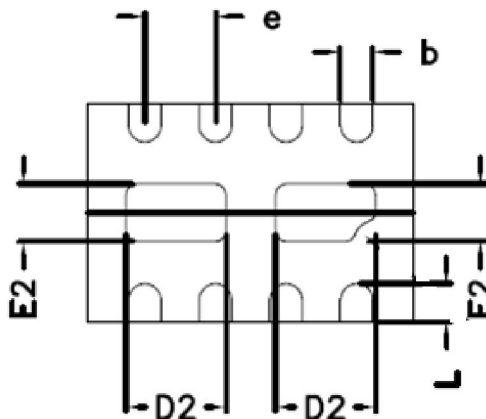
- ① The maximum current rating is limited by bond-wires.
- ② Repetitive rating; pulse width limited by max. junction temperature.
- ③ The power dissipation PD is based on max. junction temperature, using junction-to- ambient thermal resistance.
- ④ The value of $R_{\theta JA}$ is measured with the device 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

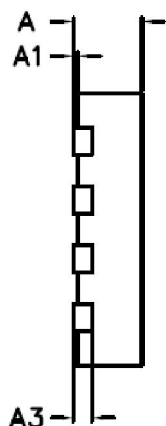


Top View



Bottom View

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