Issue Number | 002
March 2011

New Product Announcement

DFN3020B-8 MOSFET Portfolio

DFN3020 packaged MOSFETs take 70% less space

Diodes Incorporated has expanded its discrete DFN3020B-8 portfolio with the introduction of three dual MOSFETs. Occupying just 6mm² of PCB area and with an off-board profile of 0.8mm, these MOSFETs are designed to solve space constrained circuit layouts and are ideal for use in tablet PC's, Notebook PC's, thin LED TV's and in small industrial motor control products.

The portfolio comprises two dual N-channel devices with breakdown voltages (V_{DS}) of 20V and 30V respectively, and a complementary dual rated at 30V. The latter can be configured as a half bridge for driving inductive load or as a load switch for switching voltage rails in interface circuits of Notebook PC's.

The two dual N-channel devices can be used as load switches or in boost conversion circuits and are targeted at replacing larger SOT23 and SOT23-6 to provide designers with improved PCB utilisation without any loss in performance.

The DFN3020B-8 package occupies 35% board space of equivalent SOT23 packaged parts and with a junction to ambient thermal resistance (Rthj-a) of 83°C/W, supports a power dissipation of up to 2.4W under continuous conditions, providing a cooler running solution than SOT23 and SOT23-6.

The Diodes Advantage

- **Small footprint**
  The DFN3020B-8 has a PCB footprint of 6mm² enabling designers to reduce the PCB area utilized whilst maintaining performance.

  One DFN3020B-8 provides an equivalent performance to TWO SOT23 but occupies 70% less PCB area than TWO SOT23 devices.
- **Low profile**
  The DFN3020B-8 has an off board height of 0.8mm, 40% lower than SOT23/TSOP-6 making it ideal for thin profile consumer electronic products.
- **Thermally efficient package**
  Low junction to ambient thermal resistance (Rthj-a) of DFN3020B-8 enables power dissipation of up to 2.45 watts to be supported under continuous conditions.

  Low Rthja enables one DFN3020B-8 to replace one or more larger less efficient leaded packages such as SOT23 or TSOP6 and deliver a reduction in operating temperature.

Circuit Function

- Load switching
- Half bridge driver
- Boost Conversion
- Gate Driver

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Target Markets

- Tablet PC's
- Notebooks
- Thin LED TV
- Industrial motor control

DFN3020B-8 MOSFET portfolio

	Polarity	Configuration	V_{DS} (V)	V_{GS}	P_D @25°C	I_D @25°C	ESD Diode	Vth (V)	Rds(on) MAX (mΩ)			$Q_{G\,(nc)}$ TYP.	$Q_{G\,(nc)}$ TYP.	Ciss (pf)
			(V)	(+/-V)	(W)	(A)	(Y/N)	min	@10V	@4.5V	@2.5V	@4.5V	@10V	typ.
ZXMN2AMC	N	Dual	20	12	2.45	3.7	N	0.7	-	120	300	3.1	3.1	299
ZXMN3AMC	N	Dual	30	20	2.45	3.7	N	1	120	180	-	2.3	3.9	190
ZXMC3AMC	N	Complementary	30	20	2.45	3.7	N	1	120	180	-	2.3	3.9	190
	P		-30	20		-2.7	N	-1	210	330	-	3.8	6.4	206

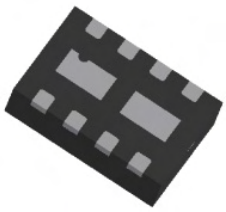
Cross Reference

The DFN3020B-8 package is footprint compatible with the ChipFET and ChipFET powerpaks from Vishay.

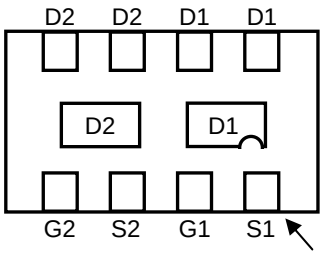
Package Outline

DFN3020B-8

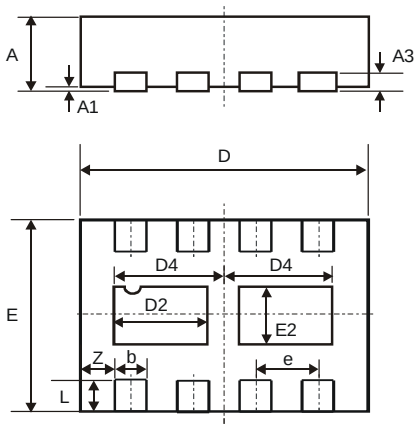
Top View



Bottom View



Package Dimensions



DFN3020B-8			
Dim	Min	Max	Typ
A	0.77	0.83	0.80
A1	0	0.05	0.02
A3	-	-	0.15
b	0.25	0.35	0.30
D	2.95	3.075	3.00
D2	0.82	1.02	0.92
D4	1.01	1.21	1.11
e	-	-	0.65
E	1.95	2.075	2.00
E2	0.43	0.63	0.53
L	0.25	0.35	0.30
Z	-	-	0.375
All Dimensions in mm			