

Description

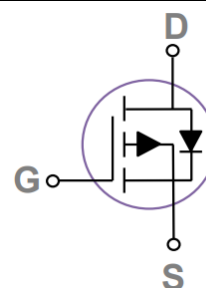
The BC3216 uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge. It can be used in a wide variety of applications.

General Features

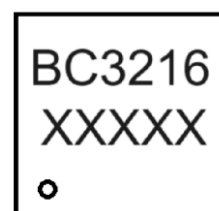
- ◆ $V_{DS} = -20V$, $I_D = -16A$
- ◆ $R_{DS(ON)} : 11.3m\Omega$ (Typ.) @ $V_{GS} = -4.5V$
- ◆ $R_{DS(ON)} : 15.8m\Omega$ (Typ.) @ $V_{GS} = -2.5V$
- ◆ High Power and current handing capability
- ◆ Lead free product is acquired
- ◆ Surface Mount Package

Application

- ◆ PWM applications
- ◆ Load switch
- ◆ Power management

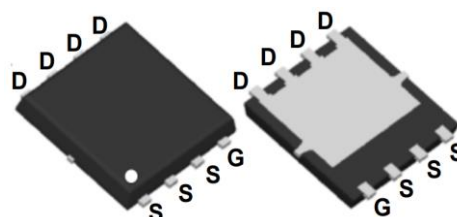


Schematic diagram



PIN1

Marking and Pin Assignment



PDFN3x3-8L

Absolute Maximum Ratings ($T_A = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Drain Current-Continuous	I_D ($T_A = 25^\circ C$)	-16	A
	I_D ($T_A = 100^\circ C$)	-12	A
Pulsed Drain Current ^(Note 1)	I_{DM} ($T_A = 25^\circ C$)	-45	A
Maximum Power Dissipation	P_D ($T_C = 25^\circ C$)	3.1	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ C$
Package Lead Soldering Temperature(10s)	T_{SOLDER}	260	$^\circ C$

Thermal Characteristics

Thermal Resistance, Junction-to-Ambient ^(Note 2)	$R_{th JA}$	38	$^\circ C/W$
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Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	-20	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V	-	-	-1	uA
Gate-Body Leakage	I _{GSS}	V _{GS} =±12V, V _{DS} =0V	-	-	±100	nA
On Characteristics ^(Note 3)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	-0.4	-0.7	-1.0	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =-10A	-	11.3	13.9	mΩ
		V _{GS} =2.5V, I _D =-8A	-	15.8	19.5	
Forward Transconductance	g _{FS}	V _{DS} =-5V, I _D =-6A	-	5	-	S
Dynamic Characteristics ^(Note 4)						
Input Capacitance	C _{ISS}	V _{DS} =-6V V _{GS} =0V f=1.0MHz	-	1280	-	pF
Output Capacitance	C _{OSS}		-	300	-	pF
Reverse Transfer Capacitance	C _{RSS}		-	280	-	pF
Switching Characteristics						
Turn-On Delay Time	t _{D(ON)}	V _{DD} = -6V R _L = 10 Ω I _D = -7A, V _{GEN} = -4.5V R _G = 2.4 Ω	-	15	-	ns
Rise Time	tr		-	60	-	ns
Turn-Off Delay Time	t _{D(OFF)}		-	70	-	ns
Fall Time	tf		-	65	-	ns
Total Gate Charge	Q _g	V _{DS} =-6V,I _D =-4A, V _{GS} =-4.5V	-	14	-	nC
Gate-Source Charge	Q _{gs}		-	3	-	nC
Gate-Drain Charge	Q _{gd}		-	3.5	-	nC
Drain-Source Diode Characteristics ^(Note 3)						
Diode forward voltage	V _{SD}	V _{GS} =0V,I _S =-1A		-0.65	-1.0	V

Notes

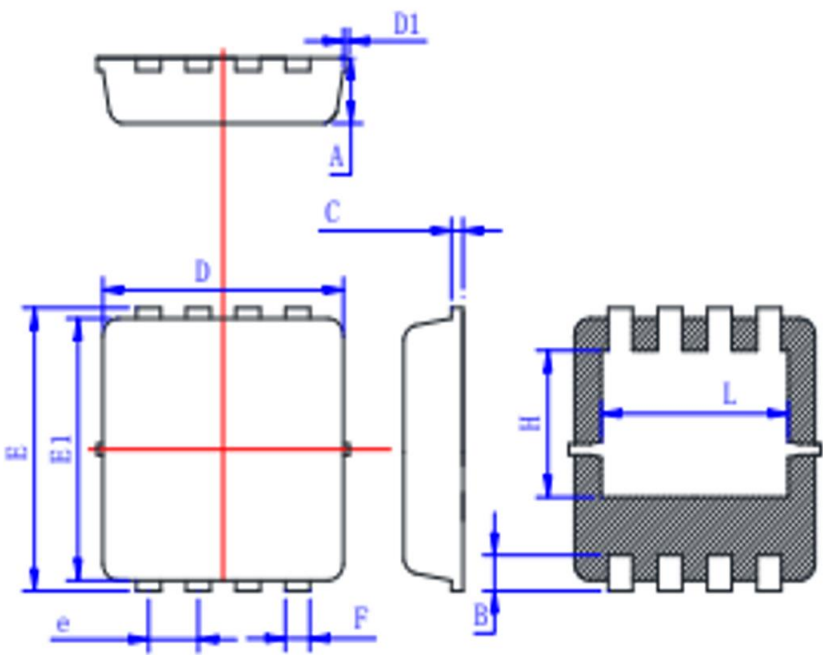
- 1.Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10\text{sec}$.
3. Pulse Test: PulseWidth $\leq 300\mu S$, Duty Cycle $\leq 2\%$
4. Guaranteed by design, not subject to production testing.

Ordering Information

Part Number	Package	Packing	MPQ.
BC3216	PDFN3X3-8	Reel	5000PCS

Package Information

PDFN3X3-8L



Symbol	Min	Typ	Max
A	0.725	0.775	0.825
B	0.28	0.38	0.48
C	0.13	0.15	0.20
D	3.05	3.15	3.25
D1			0.10
E	3.25	3.35	3.45
E1	3.0	3.1	3.2
e	0.60	0.65	0.70
F	0.25	0.30	0.35
H	1.63	1.73	1.83
L	2.35	2.45	2.55