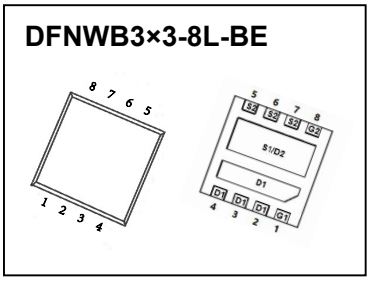
JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD

DFNWB3×3-8L-BE Plastic-Encapsulate MOSFETS

CJBM3020 N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$TYP	I_D
30 V	8.5mΩ@10V	20A
	11.5mΩ@4.5V	



DESCRIPTION

The CJBM3020 uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications

FEATURES

- Battery switch
- Load switch
- High density cell design for ultra low $R_{DS(ON)}$
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation
- Special process technology for high ESD capability

APPLICATIONS

- SMPS and general purpose applications
- Hard switched and high frequency circuits
- Uninterruptible Power Supply

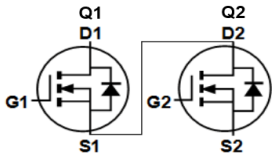
MARKING

BM3020=Part No.

Solid dot=Pin1 indicator

XX=Date Code

EQUIVALENT CIRCUIT



MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	20	A
Pulsed Drain Current	I_{DM}	100	A
Single Pulsed Avalanche Energy	E_{AS}(1)	70	mJ
Power Dissipation	P_D	1.5	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	83.3	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{stg}	-55 ~+150	℃
Lead Temperature for Soldering Purposes(1/8'' from case for 10s)	T_L	260	℃

(1).EAS condition: V_{DD}=15V,L=0.14mH, R_G=25Ω, Starting T_J = 25°C

(2).Mounted on a glass epoxy board of 25.4 mm x 25.4 mm x 0.8 mmt

MOSFET ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

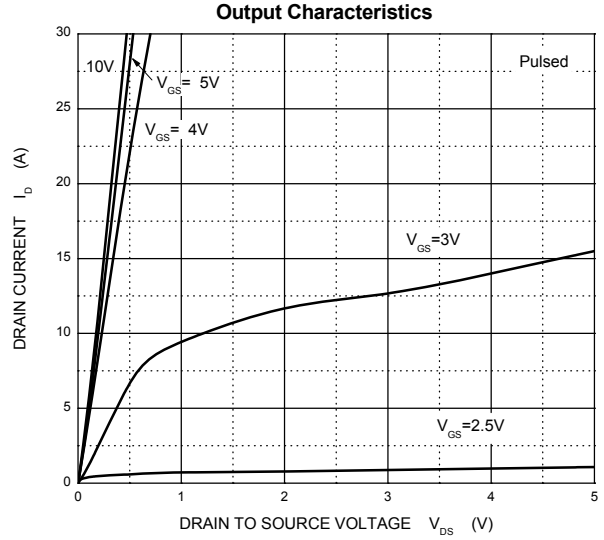
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =30V, V_{GS} =0V			1	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±20V			±100	nA
On characteristics (note1)						
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.0	1.5	3.0	V
Static drain-source on-sate resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =10A		8.5	14	mΩ
		V_{GS} =4.5V, I_D =10A		11.5	18	mΩ
Forward transconductance	g_{FS}	V_{DS} =5V, I_D =20A	15			S
Dynamic characteristics (note 2)						
Input capacitance	C_{iss}	V_{DS} =15V,V_{GS} =0V, f =1MHz		823		pF
Output capacitance	C_{oss}			138		
Reverse transfer capacitance	C_{rss}			100		
Switching characteristics (note 2)						
Total gate charge	Q_g	V_{DS}=15V, V_{GS}=10V, I_D=10A		13		nC
Gate-source charge	Q_{gs}			3		
Gate-drain charge	Q_{gd}			4.5		
Turn-on delay time	$t_{d(on)}$	V_{DD}=15V,V_{GS}=10V, R_L=1.8Ω,R_{GEN}=1.8Ω			10	ns
Turn-on rise time	t_r				8	
Turn-off delay time	$t_{d(off)}$				30	
Turn-off fall time	t_f				5	
Drain-Source Diode Characteristics						
Drain-source diode forward voltage(note1)	V_{SD}	V_{GS} =0V, I_S=10A			1.2	V
Continuous drain-source diode forward current	I_S				20	A
Pulsed drain-source diode forward current	I_{SM}				100	A
Reverse Recovery Time	t_{rr}	T_J = 25°C, I_F = 10A di/dt = 100A/μs(Note1)		22	35	ns
Reverse Recovery Charge	Q_{rr}			12	20	nC

Notes:

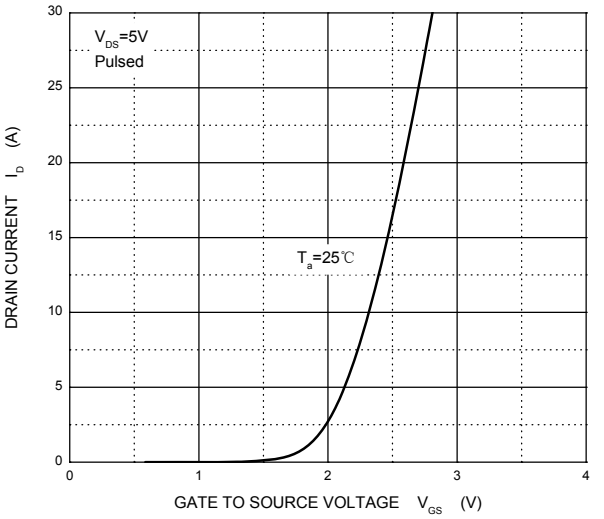
1. Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.
2. Guaranteed by design, not subject to production.

Typical Characteristics

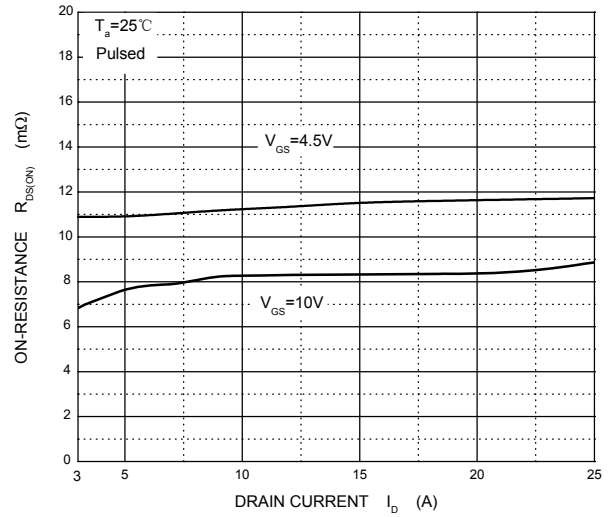
Output Characteristics



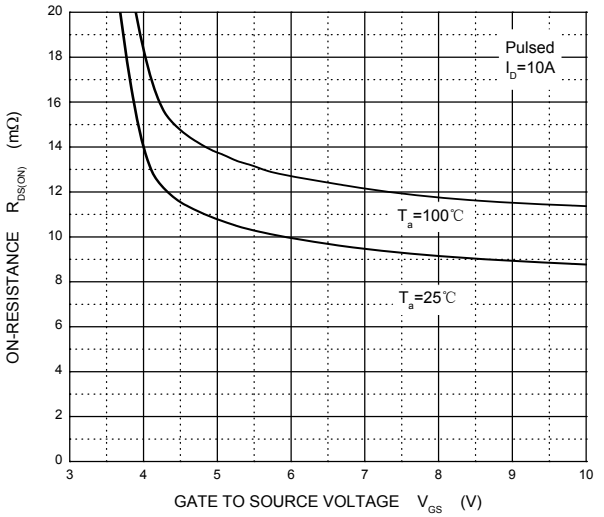
Transfer Characteristics



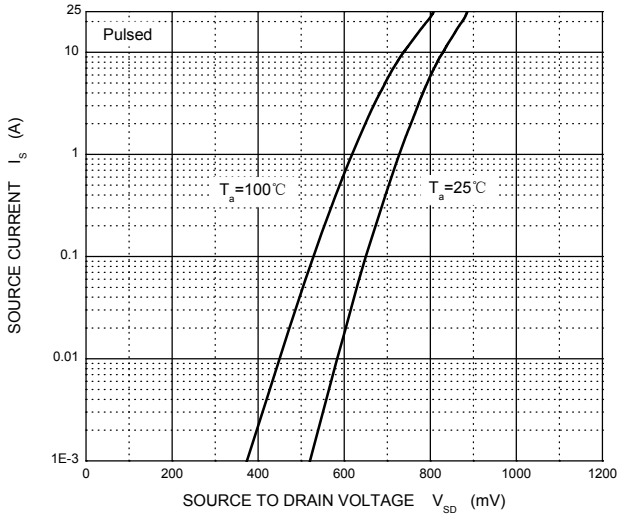
$R_{DS(ON)}$ —— I_D



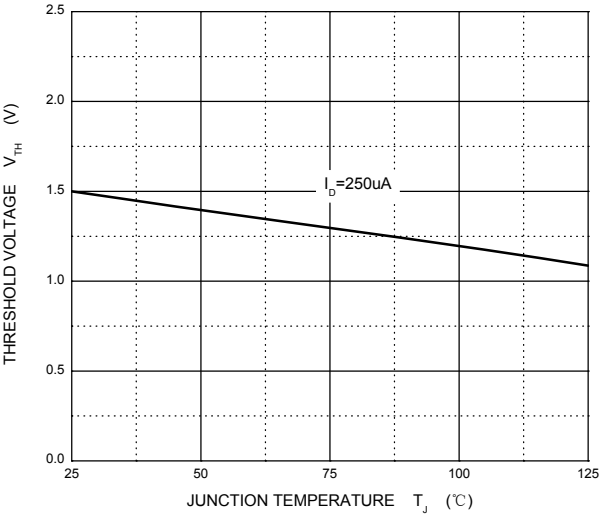
$R_{DS(ON)}$—— V_{GS}



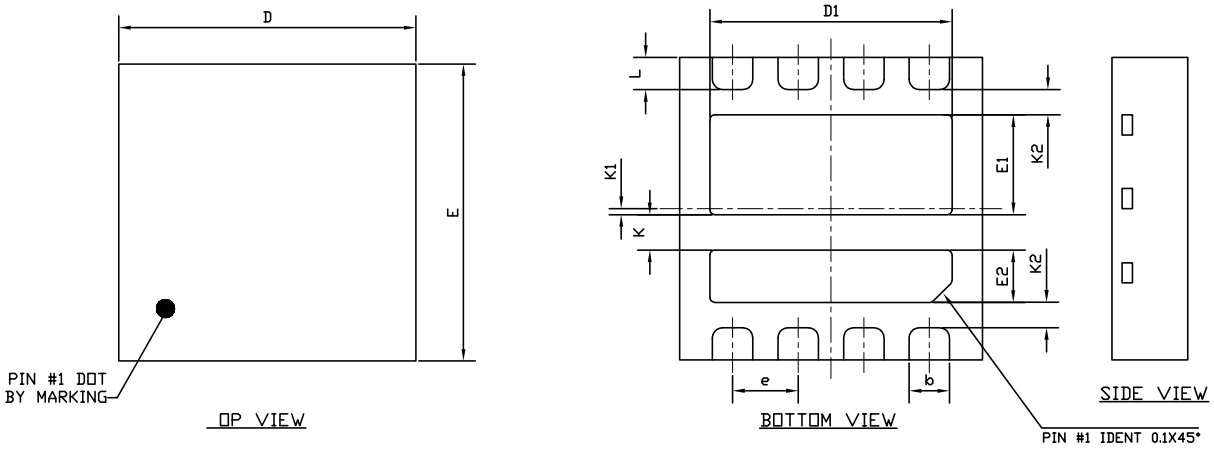
I_S —— V_{SD}

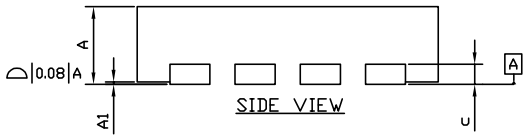


Threshold Voltage



DFNWB3×3-8L-BE Package Outline Dimensions

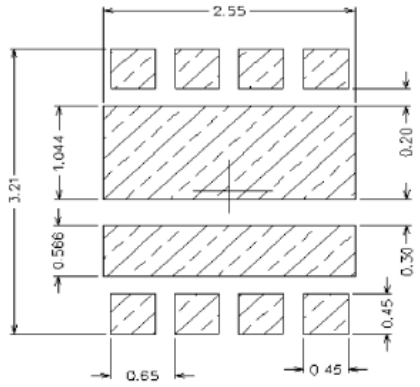




Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	**Max**	**Min**	**Max**
A	0.700	0.800	0.028	0.032
A1	0.000	0.050	0.000	0.002
b	0.350	0.450	0.014	0.018
c	0.203 REF.		0.008 REF.	
D	2.900	3.100	0.114	0.122
D1	2.300	2.500	0.090	0.098
e	0.650 (BSC)		0.026 (BSC)	
E	2.900	3.100	0.114	0.122
E1	0.890	1.090	0.035	0.043
E2	0.420	0.620	0.016	0.024
L	0.270	0.370	0.011	0.015
K	0.350 REF.		0.014 REF.	
K1	0.060 REF.		0.002 REF.	
K2	0.250 REF.		0.010 REF.	

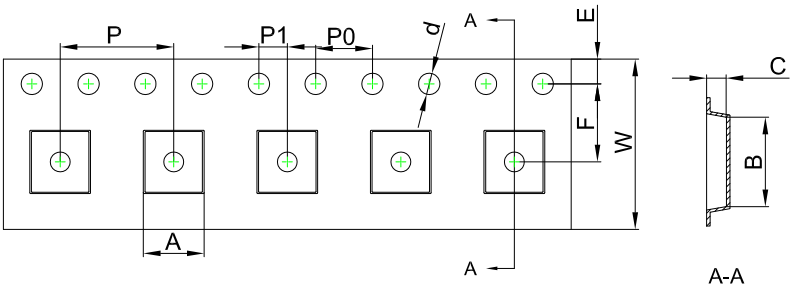
DFNWB3×3-8L-BE Suggested Pad Layout

RECOMMENDED LAND PATTERN



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.050mm.
3.The pad layout is for reference purposes only.

DFNWB3×3-8L-BE Embossed Carrier Tape

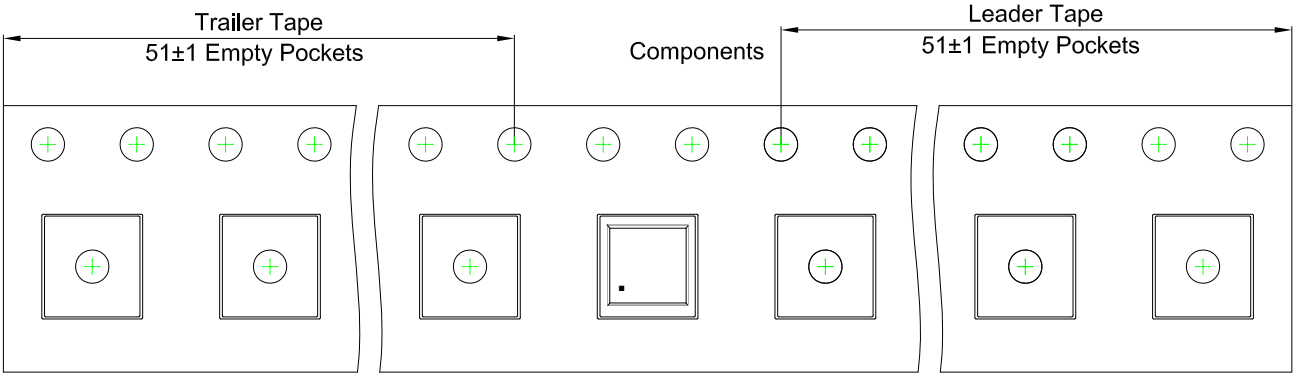


Packaging Description:

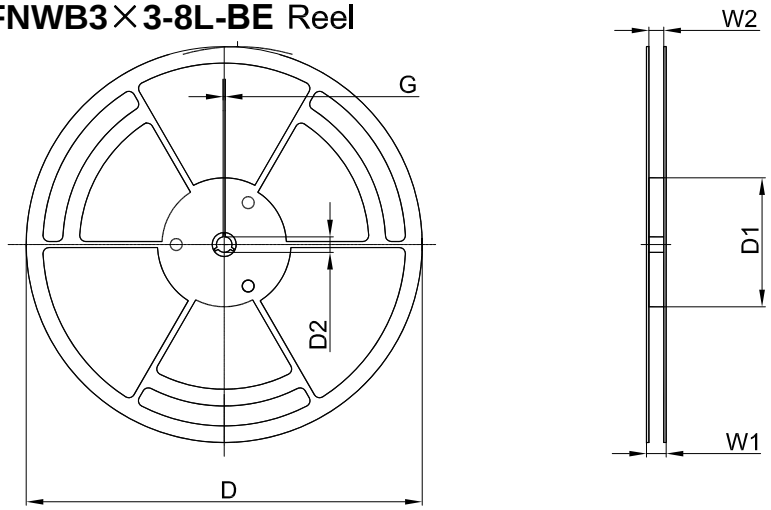
DFNWB3×3-8L-BE parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 5,000 units per 13" or 33.0 cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
DFNWB3×3-8L-BE	3.55	3.55	1.10	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

DFNWB3×3-8L-BE Tape Leader and Trailer



DFNWB3×3-8L-BE Reel



Dimensions are in millimeter						
Reel Option	D	D1	D2	G	W1	W2
13"Dia	Ø330.00	100.00	13.00	1.90	17.60	12.40

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)
5,000 pcs	13 inch	5,000 pcs	340×336×29	50,000 pcs	353×346×365