Elektronische Bauelemente

SSBM3020-C

20A, 30V, $R_{DS(ON)}$ 14mΩ

Dual N-Ch Enhancement Mode Power MOSFET

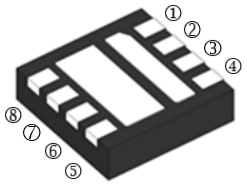
RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SSBM3020-C is the highest performance trench dual N-Ch MOSFETs with extreme high cell density, which provide excellent $R_{DS(ON)}$ and gate charge for most of the synchronous buck converter applications.

The SSBM3020-C meet the RoHS and Green Product requirement with full function reliability approved.

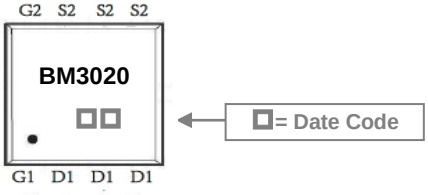
DFNW3x3-8DB



FEATURES

- Battery Switch
- Load Switch
- High Density Cell Design for Ultra Low $R_{DS(ON)}$
- Excellent Package for Good Heat Dissipation
- Special Process Technology for High ESD Capability
- Green Device Available

MARKING

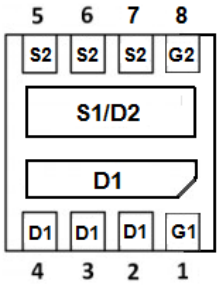


PACKAGE INFORMATION

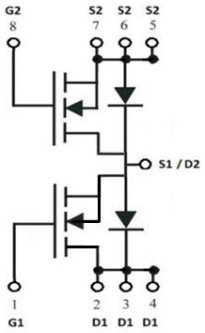
Package	MPQ	Leader Size
DFNW3x3-8DB	5K	13 inch

ORDER INFORMATION

Part Number	Type
SSBM3020-C	Lead (Pb)-free and Halogen-free



Top View



Equivalent Circuit

ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise specified)

Parameter	Symbol	Ratings	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
Total Power Dissipation	P_D	1.5	W
Lead Temperature for Soldering Purposes @1/8'' from case for 10s	T_L	260	°C
Operating Junction & Storage Temperature Range	T_J, T_{STG}	-55~150	°C
Thermal Resistance Ratings			
Thermal Resistance Junction-Ambient [1]	$R_{\theta JA}$	83.3	°C/W

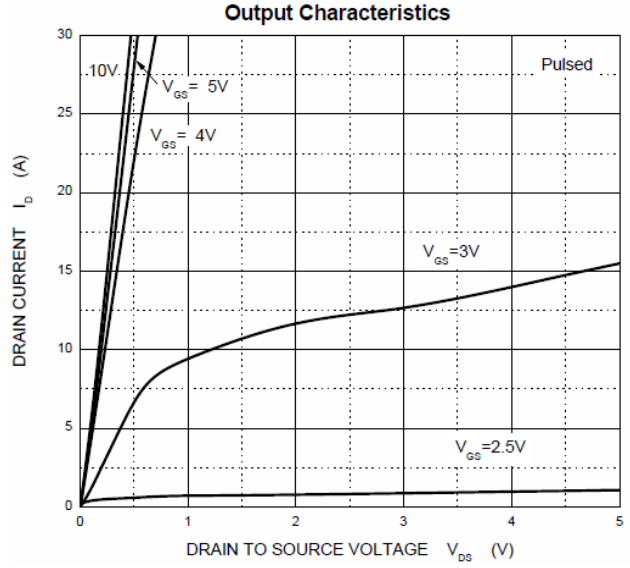
ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	30	-	-	V	V_{GS}=0, I_D=250μA
Gate Threshold Voltage [2]	$V_{GS(th)}$	1	-	3	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transconductance [2]	g_{fs}	15	-	-	S	V_{DS}=5V, I_D=20A
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}=±20V
Drain-Source Leakage Current	I_{DSS}	-	-	1	μA	V_{DS}=30V, V_{GS}=0
Static Drain-Source On-Resistance [2]	$R_{DS(ON)}$	-	8.5	14	mΩ	V_{GS}=10V, I_D=10A
		-	11.5	18		V_{GS}=4.5V, I_D=10A
Total Gate Charge	Q_g	-	13	-	nC	I_D=10A V_{DS}=15V V_{GS}=10V
Gate-Source Charge	Q_{gs}	-	3	-		
Gate-Drain Change	Q_{gd}	-	4.5	-		
Turn-on Delay Time	$T_{d(on)}$	-	10	-	nS	V_{DD}=15V V_{GS}=10V R_L=1.8Ω R_{GEN}=1.8Ω
Rise Time	T_r	-	8	-		
Turn-off Delay Time	$T_{d(off)}$	-	30	-		
Fall Time	T_f	-	5	-		
Input Capacitance	C_{iss}	-	823	-	pF	V_{GS}=0 V_{DS}=15V f=1MHz
Output Capacitance	C_{oss}	-	138	-		
Reverse Transfer Capacitance	C_{rss}	-	100	-		
Source-Drain Diode						
Continuous Source Current	I_S	-	-	20	A	
Pulsed Source Current	I_{SM}	-	-	100		
Diode Forward Voltage [2]	V_{SD}	-	-	1.2	V	V_{GS}=0, I_S=1A
Reverse Recovery Time	t_{rr}	-	22	35	nS	I_F=10A, dI/dt=100A/μs, T_J=25°C
Reverse Recovery Charge	Q_{rr}	-	12	20	nC	

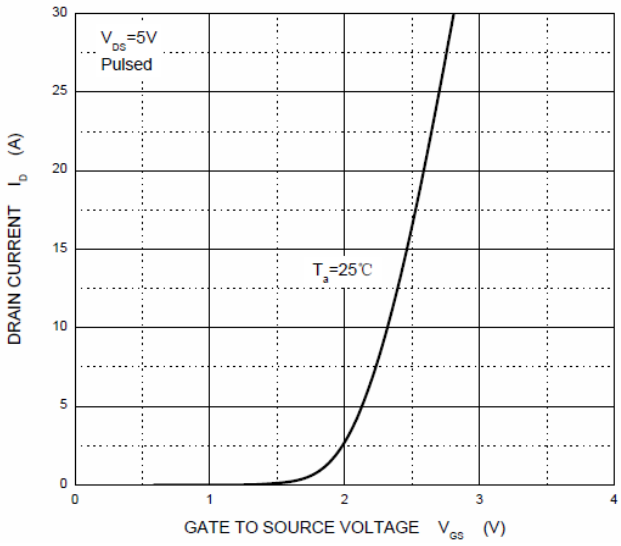
Notes:
1. Mounted on a glass epoxy board of 25.4 mm x 25.4 mm x 0.8 mm.
2. Pulse Test: Pulse Width≤300μs, duty cycle ≤2%.

TYPICAL CHARACTERISTIC

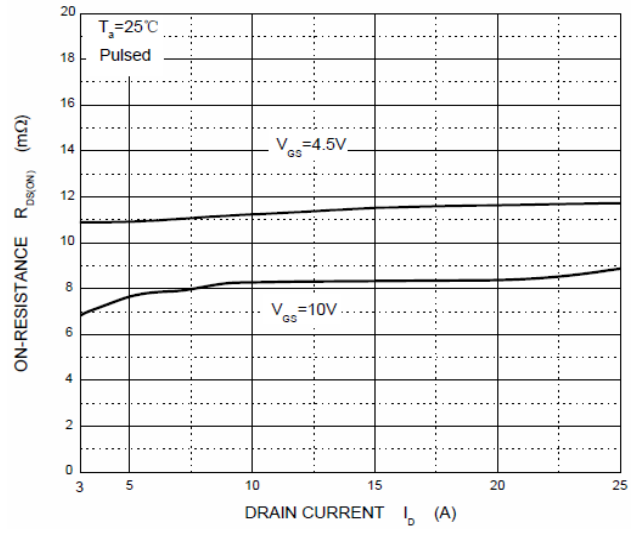
Output Characteristics



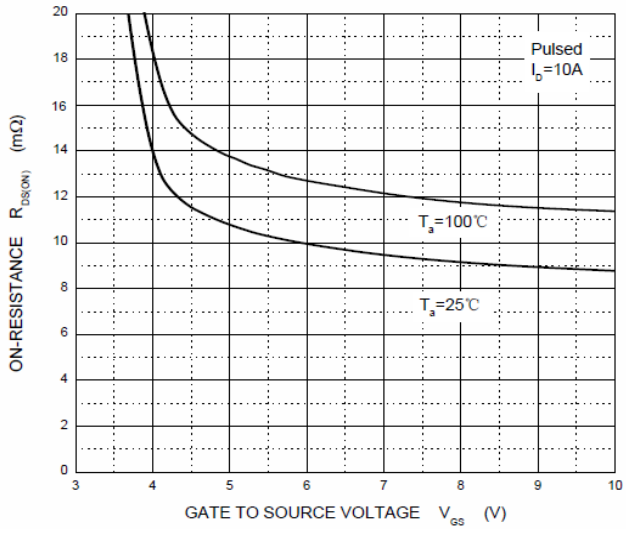
Transfer Characteristics



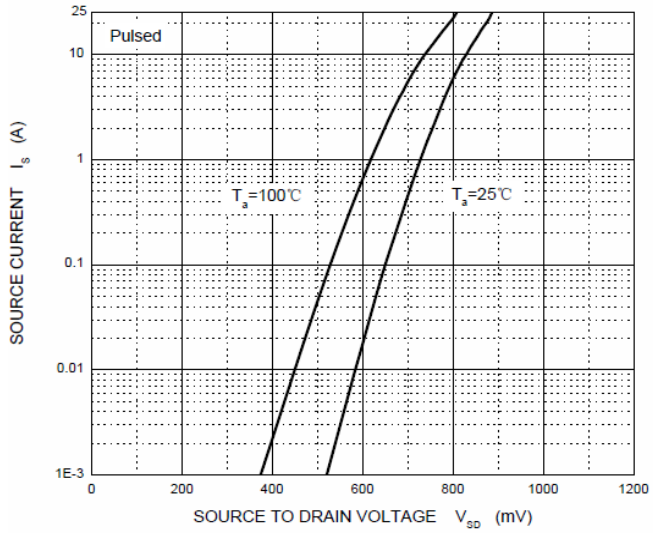
$R_{DS(ON)}$ —— I_D



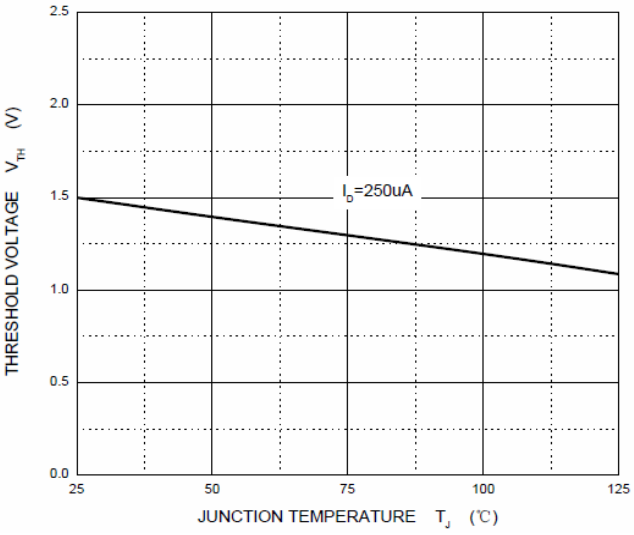
$R_{DS(ON)}$ —— V_{GS}



I_S —— V_{SD}

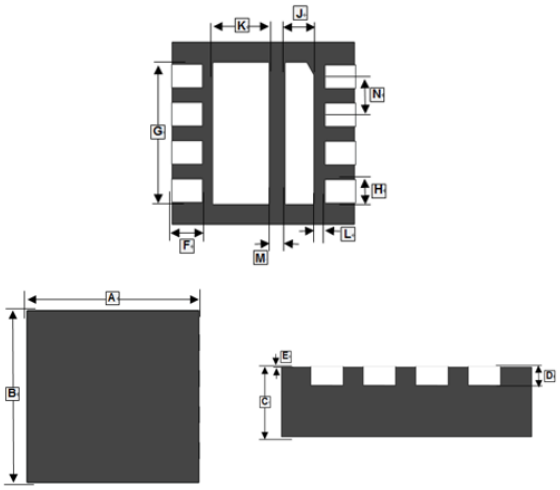


Threshold Voltage



PACKAGE OUTLINE DIMENSIONS

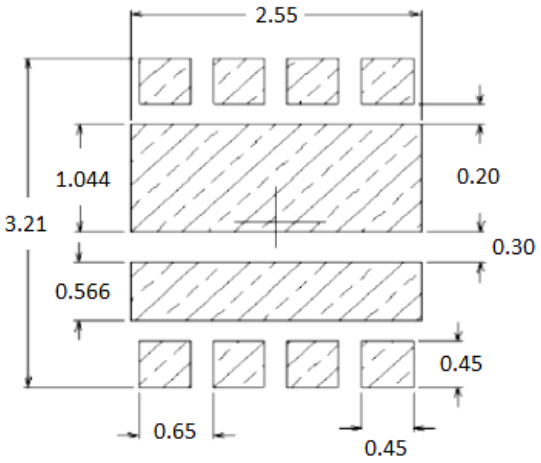
DFNW3x3-8DB



REF.	Millimeter	
	Min.	Max.
A	2.90	3.10
B	2.90	3.10
C	0.70	0.80
D	0.203 REF.	
E	0	0.05
F	0.27	0.37
G	2.30	2.50
H	0.35	0.45
J	0.42	0.62
K	0.89	1.092
L	0.25 REF.	
M	0.35 REF.	
N	0.65 BSC.	

MOUNTING PAD LAYOUT

DFNW3x3-8DB



*Dimensions in millimeters