

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	8.2mΩ@10V	20A
	14.8mΩ@4.5V	

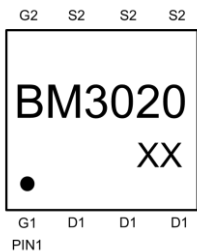
Feature

- High current capability
- Low gate charge
- Low $R_{DS(ON)}$
- RoHS and Halogen-Free Compliant

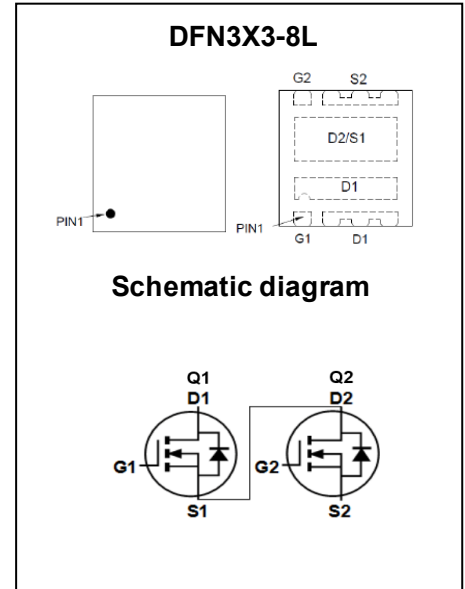
Application

- General purpose interfacing switch
- Power management functions

MARKING:



BM3020 = Device code
 Solid dot = Pin1 indicator
 XX = Date Code



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹	I_D	$T_C = 25^\circ\text{C}$	20
		$T_C = 100^\circ\text{C}$	13
Pulsed Drain Current	I_{DM}	60	A
Power Dissipation	P_D	1.5	W
Thermal Resistance from Junction to Ambient ^{1,2}	$R_{\theta JA}$	83.3	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

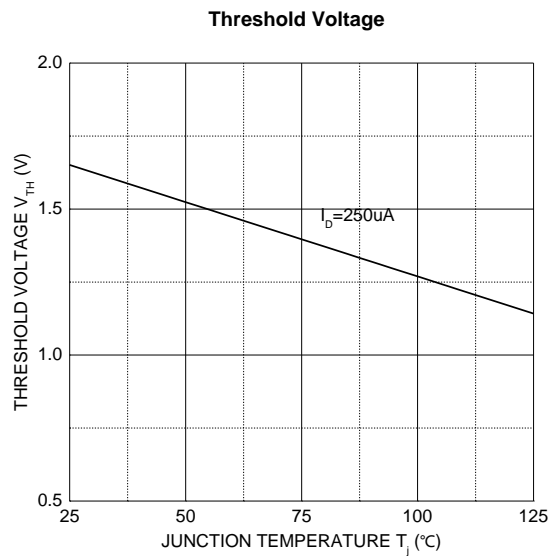
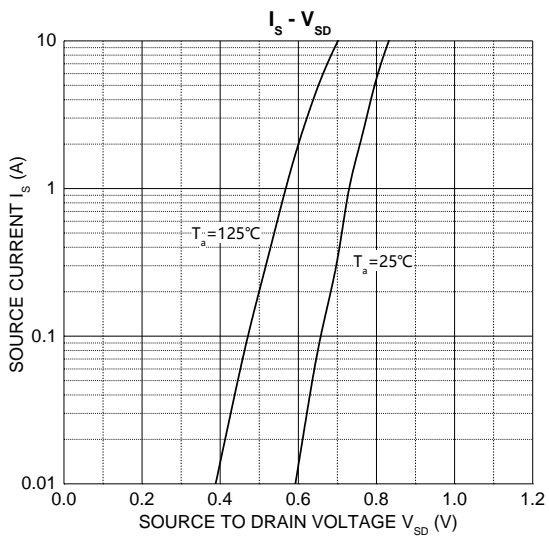
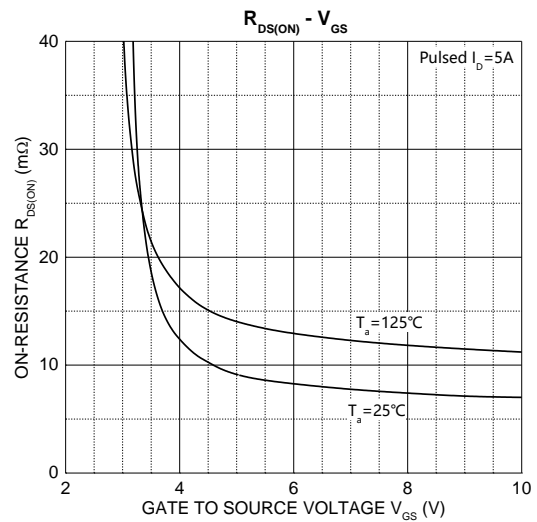
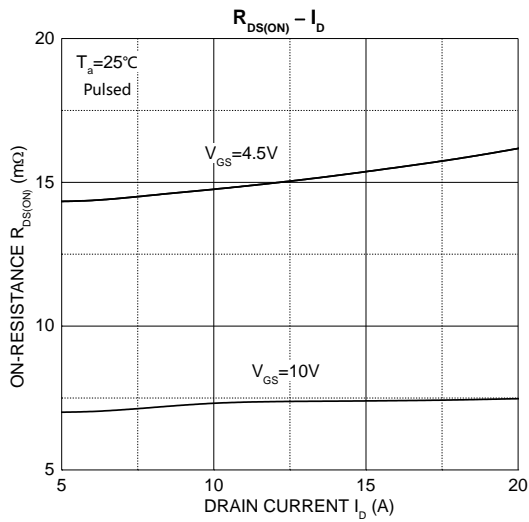
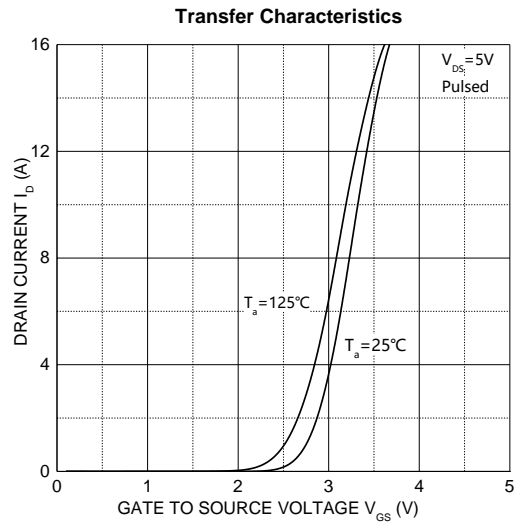
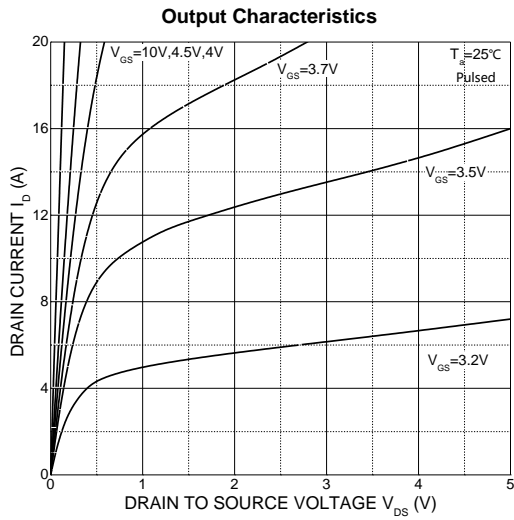
MOSFET ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 30V, V_{GS} = 0V$			1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	1.6	3.0	V
Drain-Source on-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 12A$		8.2	14	m Ω
		$V_{GS} = 4.5V, I_D = 10A$		14.8	20	
Forward Transconductance	g_{FS}	$V_{DS} = 5V, I_D = 10A$	5	12		S
Dynamic Characteristics³						
Input Capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$		992		pF
Output Capacitance	C_{oss}			137		
Reverse Transfer Capacitance	C_{rss}			122		
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 15V, V_{GS} = 10V, I_D = 10A$		15.6		nC
Gate-Source Charge	Q_{gs}			4.0		
Gate-Drain Charge	Q_{gd}			5.4		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 15V, V_{GS} = 10V, R_G = 1.8\Omega, R_L = 1.8\Omega$		9		ns
Turn-On Rise Time	t_r			7		
Turn-Off Delay Time	$t_{d(off)}$			25.5		
Turn-Off Fall Time	t_f			4.5		
Diode Characteristics³						
Continuous Source Current	I_S	$V_G = V_D = 0V, \text{Force Current}$			20	A
Pulsed Source Current	I_{SM}				60	
Diode Forward Voltage	V_{SD}	$V_{GS} = 0V, I_S = 10A, T_J = 25^\circ\text{C}$			1.2	V

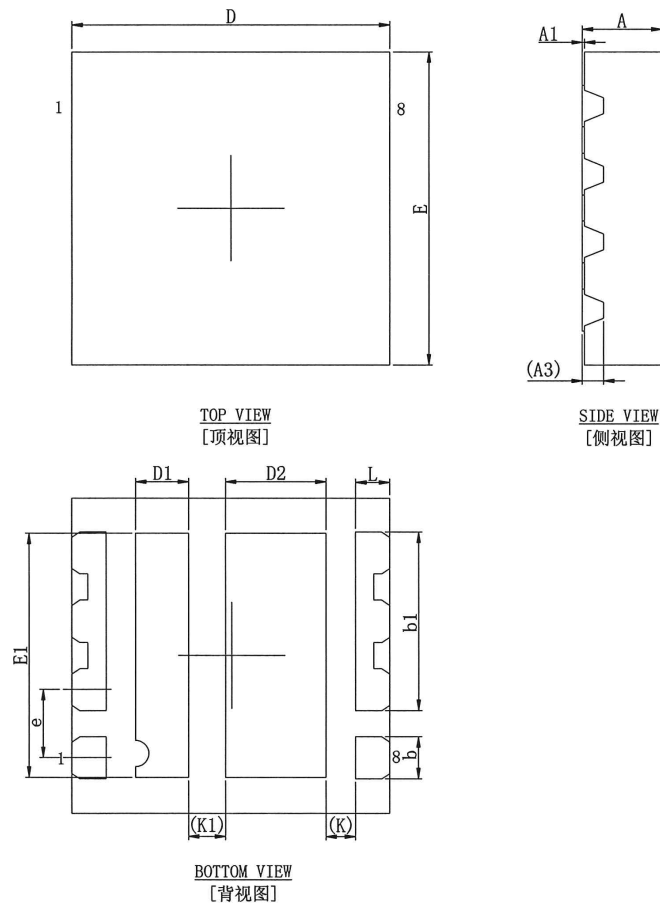
Notes :

- $R_{\theta JA}$ is measured with the device mounted on 1 in² FR4 board with 1oz. single side copper, in a still air environment with $T_A = 25^\circ\text{C}$.
- $R_{\theta JA}$ is measured in the steady state
- Pulse test : Pulse width $\leq 380\mu s$, duty cycle $\leq 2\%$.

Typical Characteristics



DFN3X3-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF		0.008REF	
b	0.350	0.450	0.014	0.018
b1	1.600	1.800	0.063	0.071
D	2.900	3.100	0.114	0.122
E	2.900	3.100	0.114	0.122
e	0.650BSC		0.026BSC	
D1	0.400	0.600	0.016	0.024
D2	0.850	1.050	0.033	0.041
E1	2.225	2.425	0.088	0.095
L	0.220	0.420	0.009	0.017
K	0.280REF		0.011REF	
K1	0.350REF		0.014REF	

Attention:

- GreenPower Electronics reserves the right to improve product design function and reliability without notice.
- Any and all semiconductor products have certain probability to fail or malfunction, which may result in personal injury, death or property damage. Customer are solely responsible for providing adequate safe measures when design their systems.
- GreenPower Electronics products belong to consumer electronics or other civilian electronic products.