

Product Summary

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

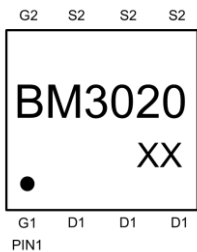
Feature

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

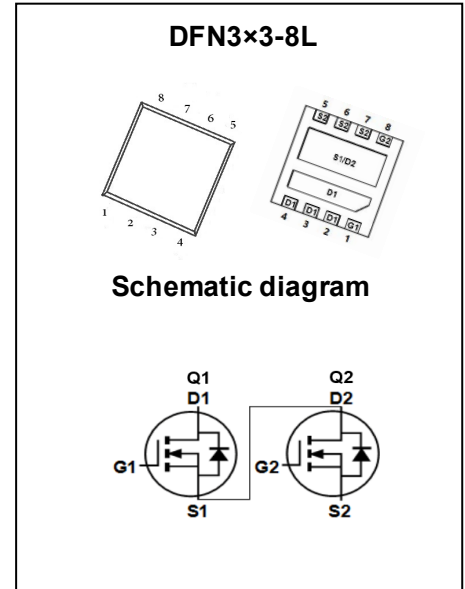
Application

- 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	$^\circ\text{C}$

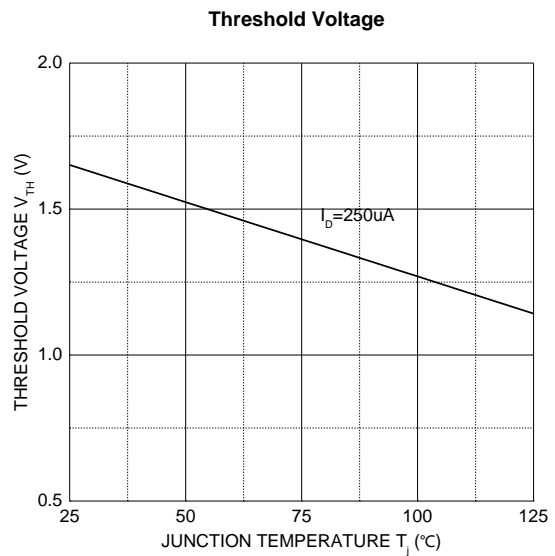
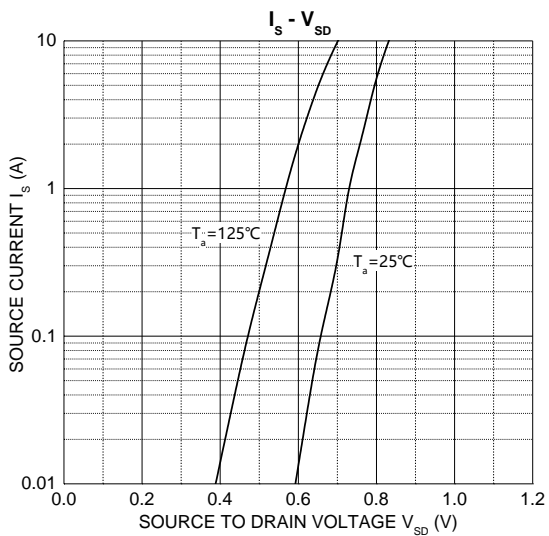
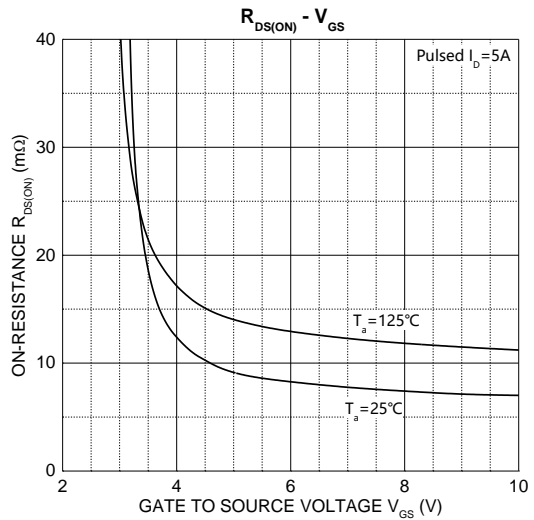
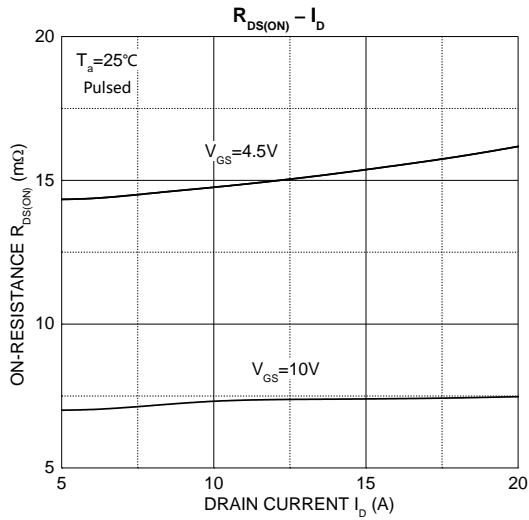
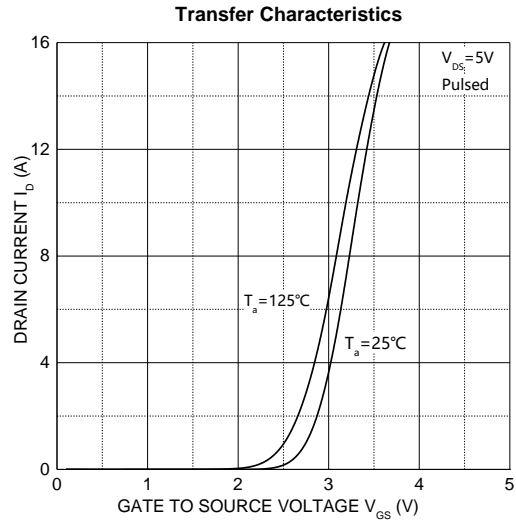
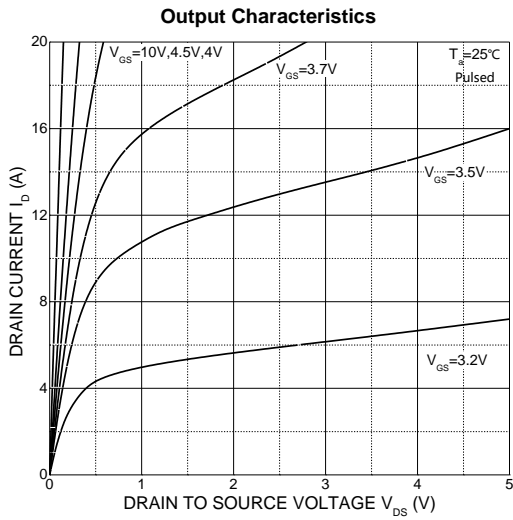
MOSFET ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$ unless otherwise noted)

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

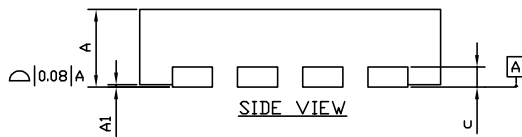
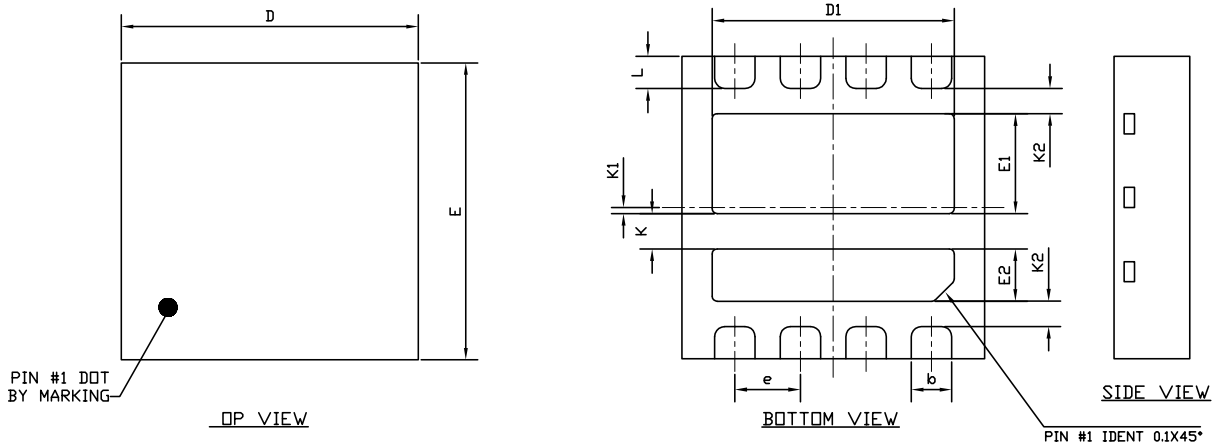
Notes :

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

Typical Characteristics



DFN3×3-8L Package Information



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.