

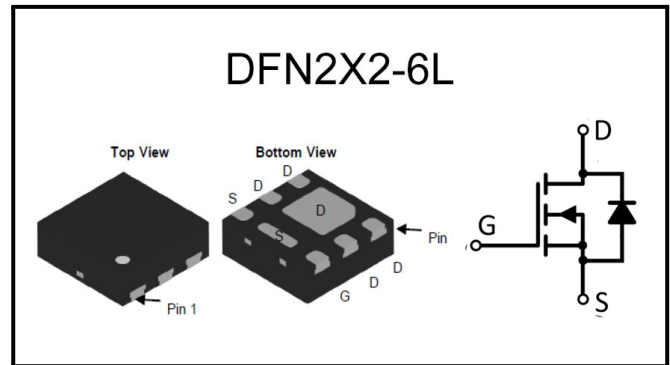
# BMZ18N30

N-Channel MOSFET

## Features

- $V_{DS}=30V$
- $I_D=18A$
- $R_{DS(ON)} @V_{GS}=10V, TYP=6.2m\Omega$
- $R_{DS(ON)} @V_{GS}=4.5V, TYP=9m\Omega$

## Package



## Description

- TrenchFET Power MOSFET
- Small package DFN2X2-6L
- Load Switch for Portable Applications

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

Symbol	Parameter	Value	Unit
$V_{DS}$	Drain-Source Voltage	30	V
$V_{GS}$	Gate-Source Voltage	$\pm 20$	V
$I_D$	Continuous Drain Current <sup>(1)(2)</sup>	18	A
$I_{DM}$	Pulsed Drain Current	72	A
$P_D$	Maximum Power Dissipation	4	W
$T_J$	Junction Temperature	150	$^\circ C$
$T_{stg}$	Storage Temperature Range	-55 to +150	$^\circ C$
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient <sup>(1)(2)</sup>	31.5	$^\circ C/W$



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Electrical Characteristics @ $T_A=25^\circ\text{C}$  unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
<b>Off Characteristics</b>						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30	–	–	V
$I_{GSS}$	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	–	–	$\pm 100$	nA
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=30V, V_{GS}=0V$	–	–	1.0	$\mu A$
<b>On Characteristics</b>						
$V_{GS(th)}$	Gate Threshold Voltage <sup>(3)</sup>	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.5	2.0	V
$R_{DS(on)}$	Drain-Source On-State Resistance <sup>(3)</sup>	$V_{GS}=10V, I_D=12A$	–	6.2	7.6	m $\Omega$
		$V_{GS}=4.5V, I_D=10A$	–	9.0	13	
$g_{fs}$	Forward Transconductance <sup>(3)</sup>	$V_{DS}=5V, I_D=10A$	10	–	–	S
<b>Dynamic Characteristics</b>						
$C_{iss}$	Input Capacitance	$V_{DS}=15V,$ $V_{GS}=0V,$ $f=1.0\text{MHz}$	–	1060	–	pF
$C_{oss}$	Output Capacitance		–	160	–	
$C_{rss}$	Reverse Transfer Capacitance		–	135	–	
<b>Switching Characteristics</b>						
$t_{d(on)}$	Turn-On Delay Time	$V_{GS}=10V,$ $V_{DD}=15V,$ $I_D=10A$ $R_G=3\Omega$	–	3	–	ns
$t_r$	Turn-On Rise Time		–	4	–	
$t_{d(off)}$	Turn-Off Delay Time		–	23	–	
$t_f$	Turn-Off Fall Time		–	14	–	
$Q_g$	Total Gate Charge	$V_{DS}=15V$ $V_{GS}=10V,$ $I_D=15A$	–	18	–	nC
$Q_{gs}$	Gate-Source Charge		–	2.5	–	
$Q_{gd}$	Gate-Drain Charge		–	2.1	–	
<b>Source-Drain Diode Characteristics</b>						
$V_{SD}$	Diode Forward Voltage	$I_S=2A, V_{GS}=0V,$	–	–	1.2	V
$I_S$	Diode Forward Current	–	–	–	18	A

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 $\leq 300\mu s$ , duty cycle $\leq 2\%$ .



Typical Performance Characteristics ( $T_J = 25^\circ\text{C}$ , unless otherwise noted)

Figure 1 : Output Characteristics

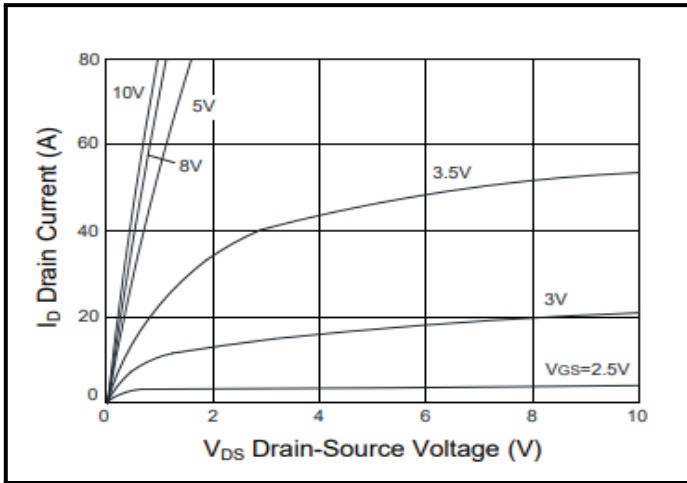


Figure 2 : Transfer Characteristics

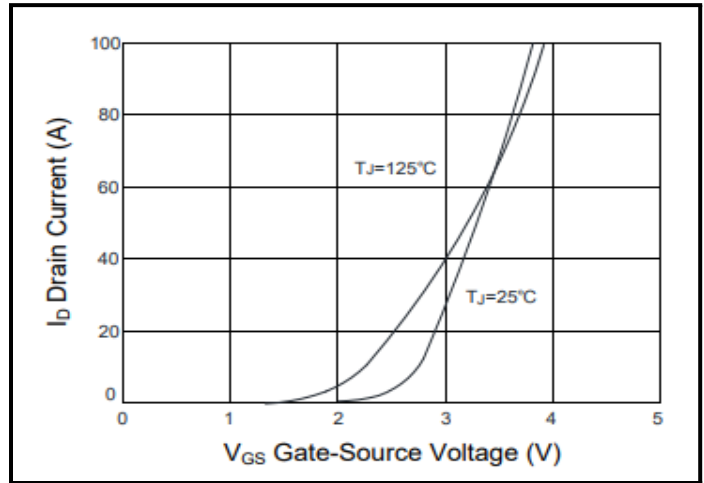


Figure 3 :  $R_{DS(ON)} - I_D$

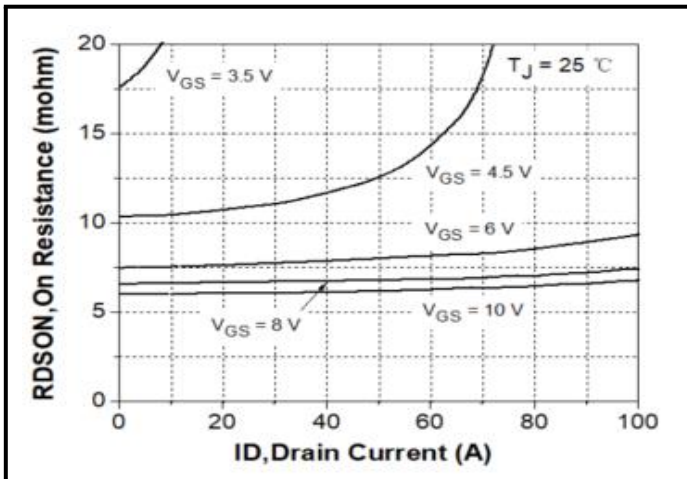


Figure 4 : Dynamic Input Characteristics

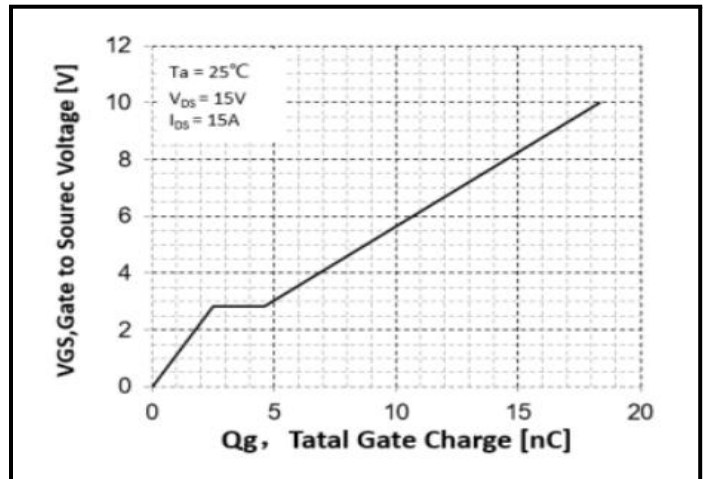


Figure 5 : Capacitance vs. Drain Source Voltage

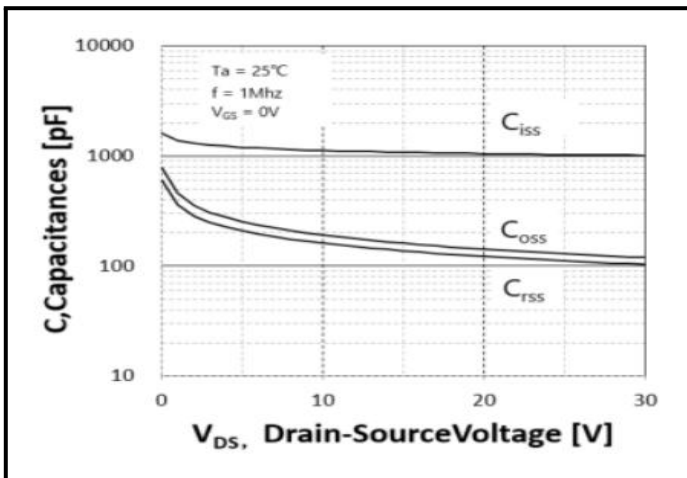
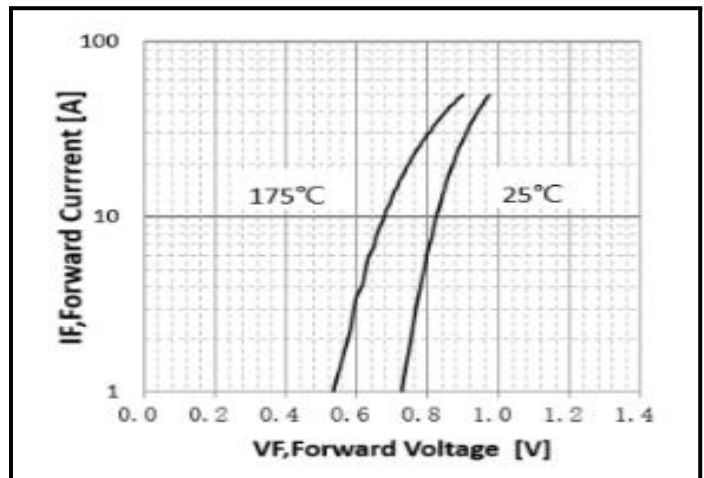


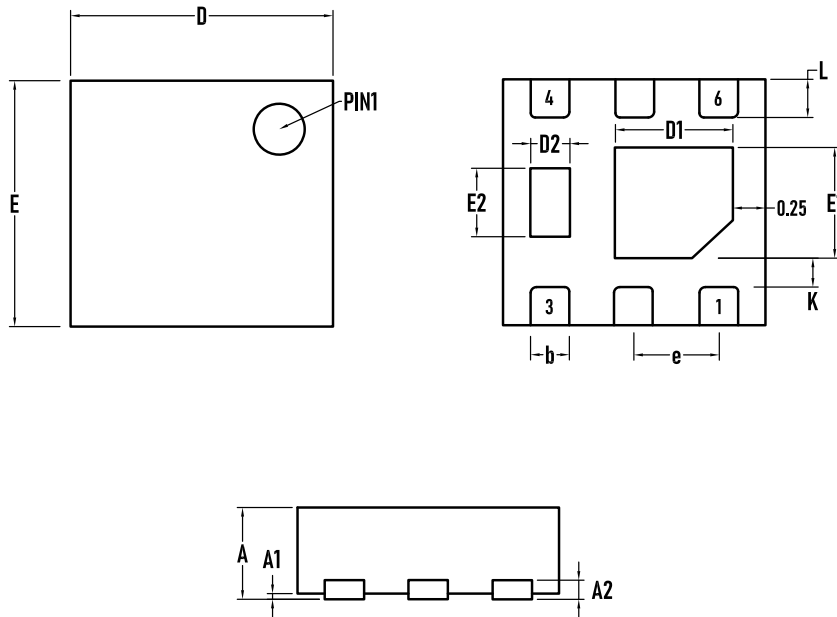
Figure 6 :  $I_S$  vs  $V_{SD}$



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Outline Drawing - DFN2x2-6L



SYMBOL	MILLIMETER	
	MIN.	MAX.
A	0.700	0.800
A1	0.000	0.050
A2	0.152REF	
b	0.250	0.350
D	1.900	2.100
D1	0.800	1.000
D2	0.200	0.400
E	1.900	2.100
E1	0.850	1.050
E2	0.460	0.660
e	0.65BSC	
L	0.174	0.326
K	0.200MIN	

