MY2N10BF
100V N-Channel Enhancement Mode MOSFET

MAOYUANWEI semiconductor

General Description

The MY2N10BF is the high cell density trenched N-CH MOSFET,which provides excellent $R_{DS(ON)}$ and efficiency for most of the small power switching and load switch applications.
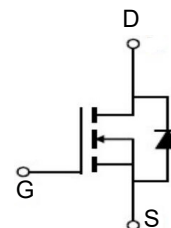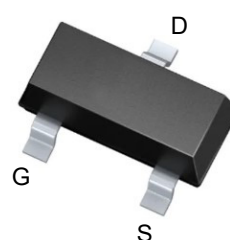
RoHS Compliant

Features

V_{DSS}	100	V
I_D	2.3	A
$R_{DS(ON)}(atV_{GS}=10V)$	200	mΩ
$R_{DS(ON)}(atV_{GS}=4.5V)$	230	mΩ

Application

- ➢ Battery protection
- ➢ Load switch
- ➢ Power management

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY2N10BF	SOT-23	2N10	3000

Absolute Maximum Ratings (T$_A$=25℃ unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T$_A$=25℃	Continuous Drain Current, V$_{GS}$ @ 10V[1]	2.3	A
I_D@T$_A$=70℃	Continuous Drain Current, V$_{GS}$ @ 10V[1]	1.2	A
I_{DM}	Pulsed Drain Current[2]	5	A
P_D@T$_A$=25℃	Total Power Dissipation[3]	1	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃
$R_{θJA}$	Thermal Resistance Junction-ambient(steady state)[1]	125	℃/W
	Thermal Resistance Junction-ambient(t<10s)[1]	80	℃/W

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Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = 250μA	100	-	-	V
Gate Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V	-	-	±100	nA
Drain Cut-off Current	I_{DSS}	V_{DS} = 100V, V_{GS} = 0V	-	-	1	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS} = V_{DS}, I_D = 250μA	1.1	1.5	2.5	V
Drain-Source on-state Resistance[3]	$R_{DS(on)}$	V_{GS} = 10V, I_D = 2A	-	200	280	mΩ
		V_{GS} = 4.5V, I_D = 1.5A	-	230	310	
Dynamic Characteristics[4]						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 50V, f = 1MHz	-	440	-	pF
Output Capacitance	C_{oss}		-	14	-	
Reverse Transfer Capacitance	C_{rss}		-	10	-	
Switching Characteristics[4]						
Total gate charge	Q_g	V_{GS} = 10V, V_{DS} = 50V, I_D = 2A	-	5.3	-	nC
Gate-source charge	Q_{gs}		-	1.4	-	
Gate-drain charge	Q_{gd}		-	1.8	-	
Turn-on Time	$t_{d(on)}$	V_{GS} = 10V, V_{DD} = 50V, R_G = 1Ω, I_D = 2A	-	14	-	ns
Rise time	t_r		-	54	-	
Turn-off Time	$t_{d(off)}$		-	18	-	
Fall time	t_f		-	11	-	
Source-Drain Diode characteristics						
Body Diode Voltage[3]	V_{SD}	I_S = 1A, V_{GS} = 0V	-	-	1.2	V
Continuous Source Current	I_S		-	-	2	A

Notes:

1. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C.

2. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.

3. Pulse Test: Pulse width≤300μs, duty cycle≤2%.

4. This value is guaranteed by design hence it is not included in the production test.
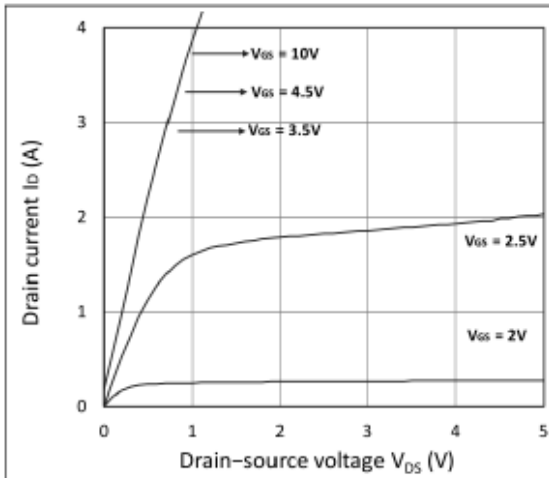
Typical Electrical and Thermal Characteristics
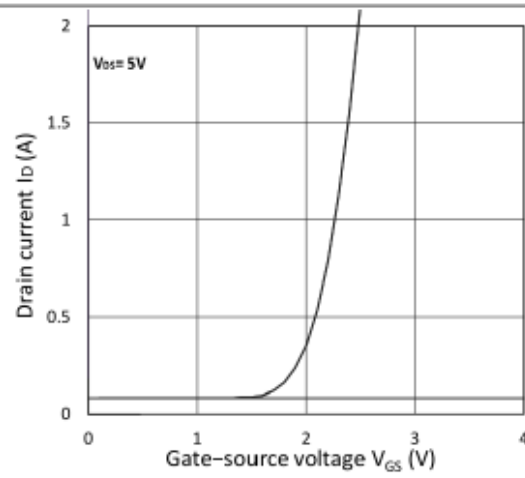
Figure 1. Output Characteristics

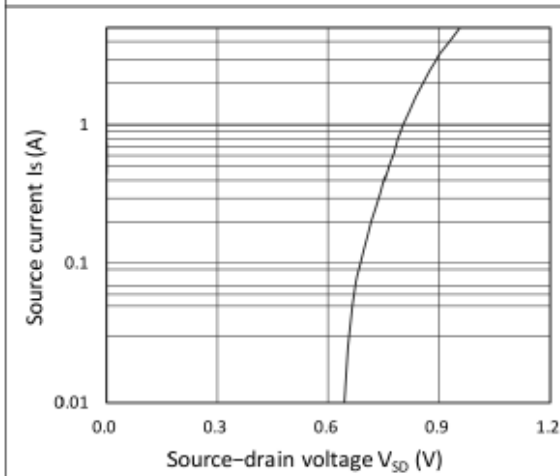Figure 2. Transfer Characteristics
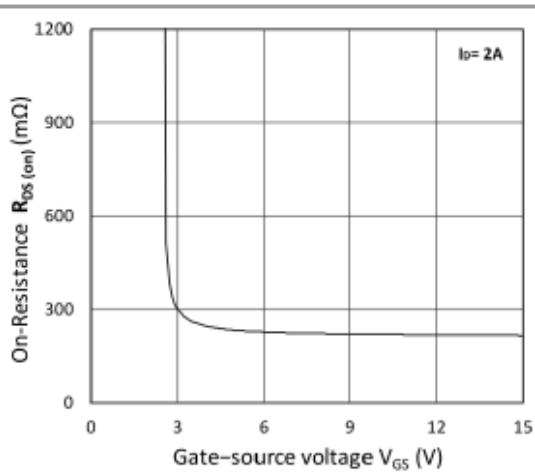
Figure 3. Forward Characteristics of Reverse
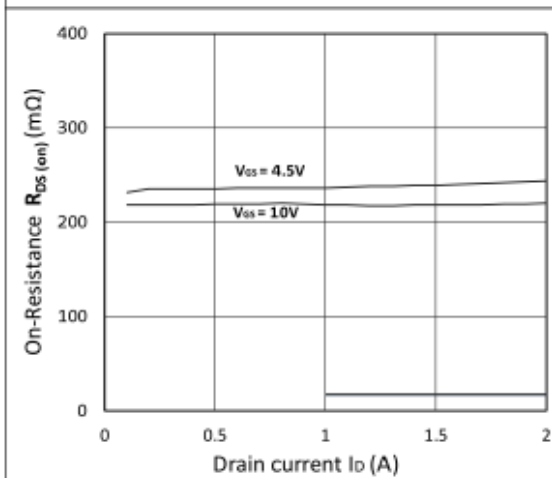
Figure 4. $R_{DS(ON)}$ vs. V_{GS}

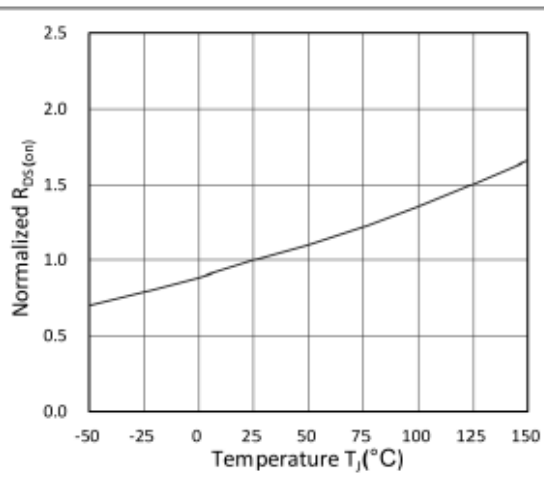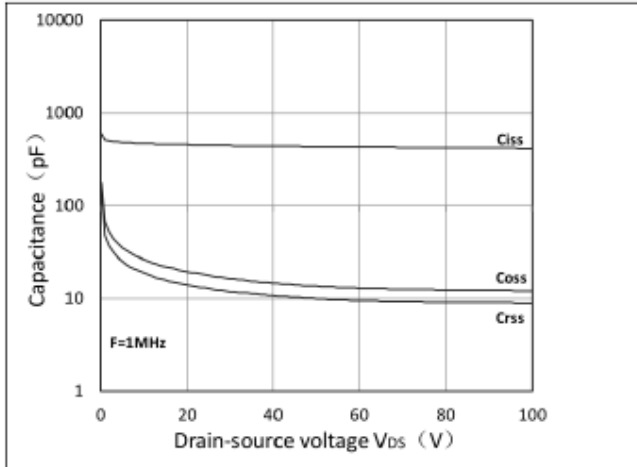Figure 5. $R_{DS(ON)}$ vs. I_D

Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

Figure 7. Capacitance Characteristics

Figure 8. Gate Charge Characteristics
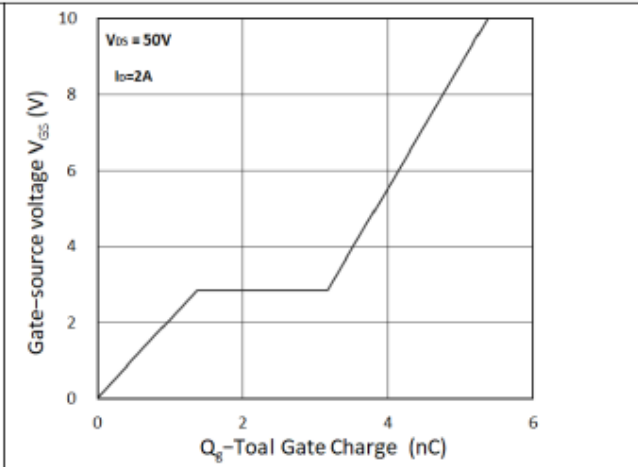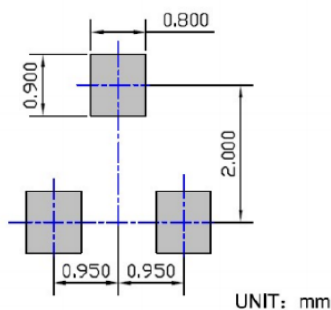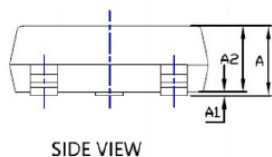
Package Mechanical Data-SOT-23

TOP VIEW

SIDE VIEW

SIDE VIEW

SUGGESTED SOLDER PAD LAYOUT
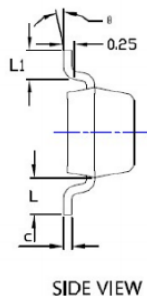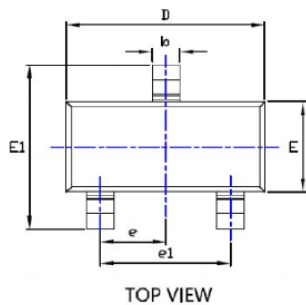
UNIT: mm

SYMBOL	DIMENSIONS					
	INCHES			Millimeter		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.035	----	0.045	0.900	----	1.150
A1	0.000	----	0.004	0.000	----	0.100
A2	0.035	0.038	0.041	0.900	0.975	1.050
b	0.012	0.016	0.020	0.300	0.400	0.500
c	0.004	----	0.008	0.100	----	0.200
D	0.110	0.114	0.118	2.800	2.900	3.000
E	0.047	0.051	0.055	1.200	1.300	1.400
E1	0.089	0.094	0.100	2.250	2.400	2.550
e	0.037TYP			0.950TYP		
e1	0.071	0.075	0.079	1.800	1.900	2.000
L	0.022REF			0.550REF		
L1	0.012	0.016	0.200	0.300	0.400	0.500
θ	0°	----	8°	0°	----	8°

NOTE:
1.PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
2.TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
3.THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.