BORN SEMICONDUCTOR

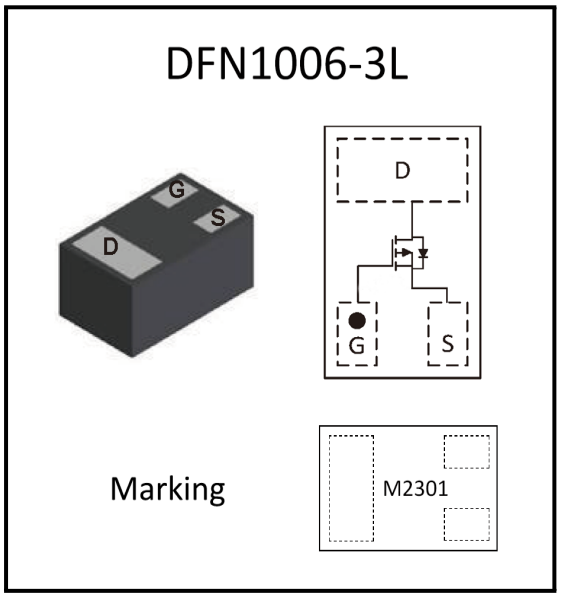
BMDFN2301

P-Channel MOSFET

Features

- V_{DS}=-20V
- I_D=-2A
- $R_{DS(ON)}$ @V_{GS}=-4.5V, TYP=95mΩ
- $R_{DS(ON)}$ @V_{GS}=-2.5V, TYP=130mΩ

Package



Description

- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance
- DFN1006-3L for Surface Mount Package
- DC-DC converter circuit
- Power Switch

Ordering information

Order code	Package	Marking	Base qty	Delivery mode
BMDFN2301	DFN1006-3L	M2301	10K	Tape and reel

Absolute Maximum Ratings (@T_A=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	±12	V
I_D	Continuous Drain Current	-2	A
I_{DM}	Pulsed Drain Current	-6	A
P_D	Maximum Power Dissipation	270	mW
$R_{\theta JA}$	Typical Junction Capacitance	420	°C/W
T_J	Operating Junction Temperature	-55 to + 150	°C
T_L	Lead Temperature	260	°C
T_{stg}	Storage Temperature Range	55 to + 150	°C

BORN SEMICONDUCTOR , INC. ALL RIGHT RESERVED

Specifications are subject to change without notice.
Please refer to http://*www.born-tw.com* for current information.

Revision: 2022-Jan-1-A

BMDFN2301

P-Channel MOSFET

Electrical Characteristics @T_A=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
BV_{DS}	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D =-250uA	-20	–	–	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = -20V, V_{GS} = 0V	–	–	-1	uA
I_{GSS}	Gate-Body Leakage Current	V_{GS} = ±12V, V_{DS} = 0V	–	–	±100	nA
ON CHARACTERISTICS						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = -250uA	-0.40	-0.65	-1.0	V
$R_{DS(on)}$	Drain-Source On-State Resistance	V_{GS} = -4.5V, I_D = -1 A	–	95	120	mΩ
		V_{GS} = -2.5V, I_D = -1A	–	130	170	
CHARGES, CAPACITANCES AND GATE RESISTANCE						
C_{iss}	Input Capacitance	V_{DS} = -10V,	–	250	–	pF
C_{oss}	Output Capacitance	V_{GS} = 0V,	–	32	–	
C_{rss}	Reverse Transfer Capacitance	f = 1.0MHZ	–	25	–	
$Q_{G(TOT)}$	Total Gate Charge	V_{DS} = -10V	–	1.1	–	nC
$Q_{G(TH)}$	Threshold Gate Charge	I_D = -450mA,	–	3	–	
Q_{GS}	Gate-to-Source Charge	V_{GS} = -4.5V	–	0.25	–	
Q_{GD}	Gate-to-Drain Charge		–	0.65	–	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS} = -10V,	–	5	–	ns
t_r	Turn-On Rise Time	I_D = -450mA,	–	5	–	
$t_{d(off)}$	Turn-Off Delay Time	R_G = 6Ω,	–	55	–	
t_f	Turn-Off Fall Time	V_{GS} = -4.5V	–	32	–	
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	I_S = -0.5A,V_{GS} = 0V	-0.5	-0.8	-1.2	V

BORN SEMICONDUCTOR , INC. ALL RIGHT RESERVED

Specifications are subject to change without notice.
Please refer to http://*www.born-tw.com* for current information.

BMDFN2301

P-Channel MOSFET

Typical Performance Characteristics(T_J = 25 °C, unless otherwise noted)

Figure 1 :Output characteristics

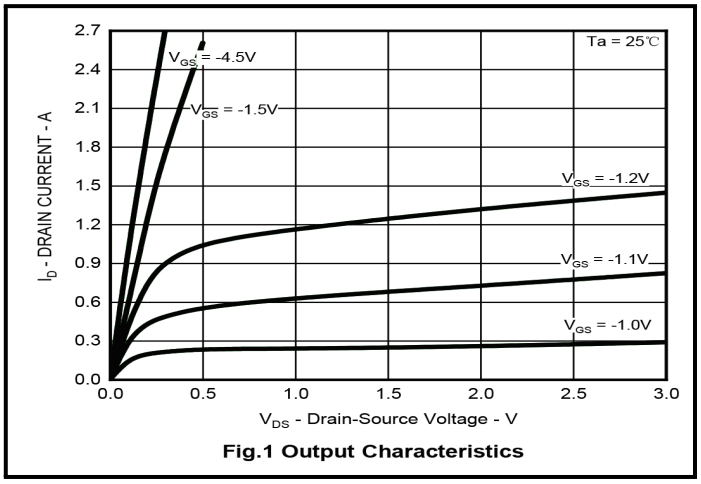


Fig.1 Output Characteristics

Figure 2 :On-Resistance vs. Drain Current (I)

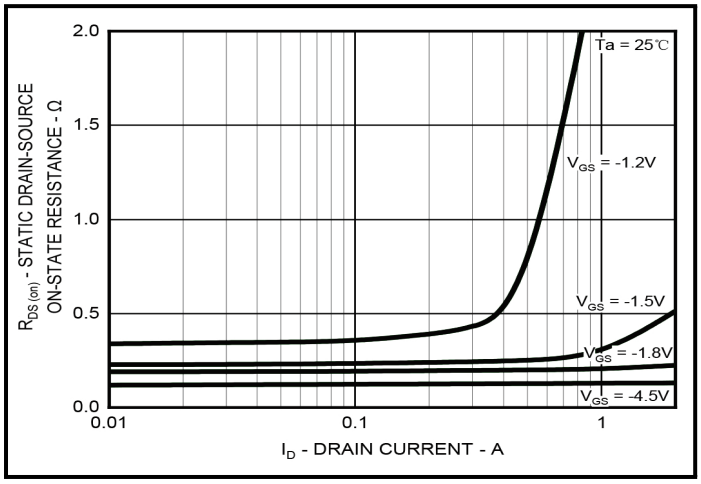


Figure 3 :On-Resistance vs.Drain current

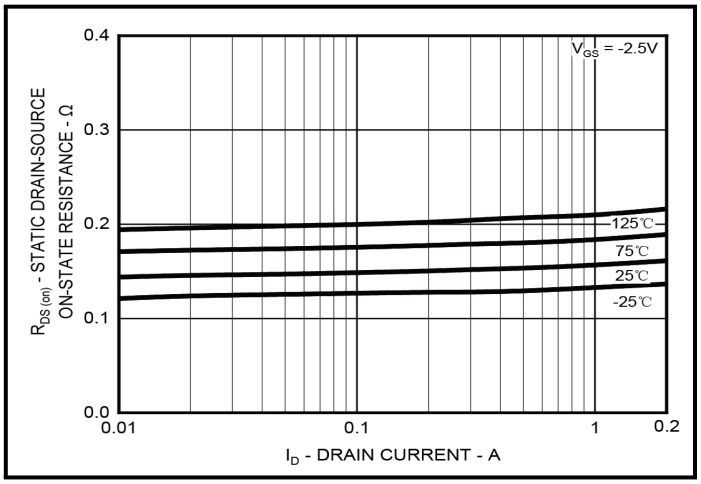


Figure 4 :Diode Forward Voltage vs. Current

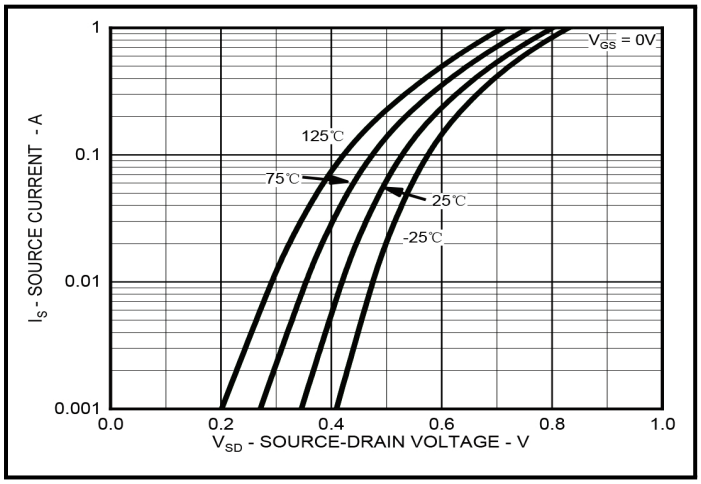


Figure 5 :Typical Transfer Characteristic

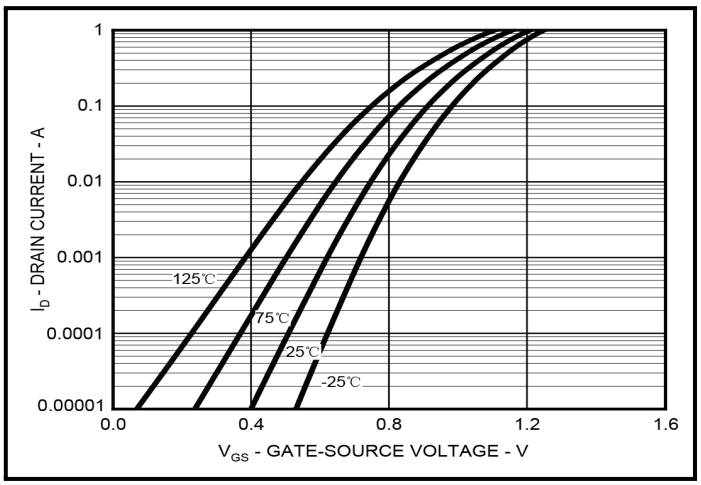
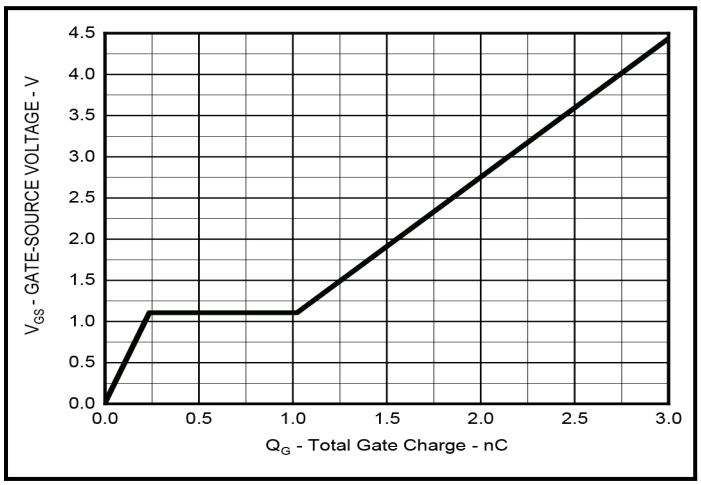


Figure 6 :Gate Charge Characteristics



BORN SEMICONDUCTOR , INC. ALL RIGHT RESERVED

Specifications are subject to change without notice.
Please refer to http://*www.born-tw.com* for current information.

Revision: 2022-Jan-1-A

Typical Performance Characteristics(T_J = 25 °C, unless otherwise noted)

Figure 7 :Typical Junction Capacitance

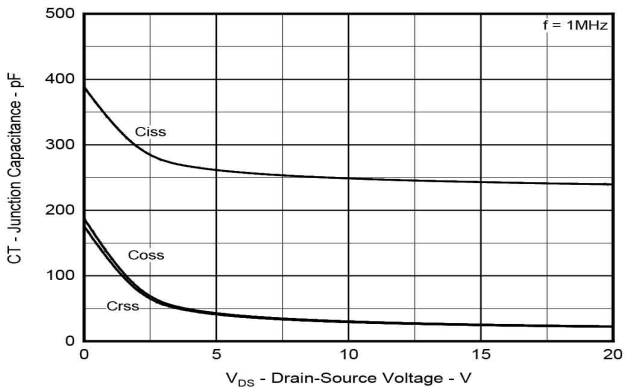


Fig.7 Typical Junction Capacitance

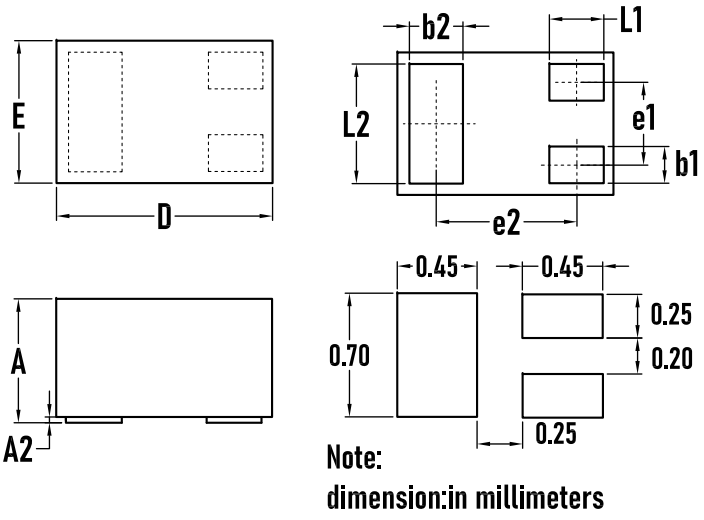
BORN SEMICONDUCTOR , INC. ALL RIGHT RESERVED

Specifications are subject to change without notice.
Please refer to http://*www.born-tw.com* for current information.

BMDFN2301

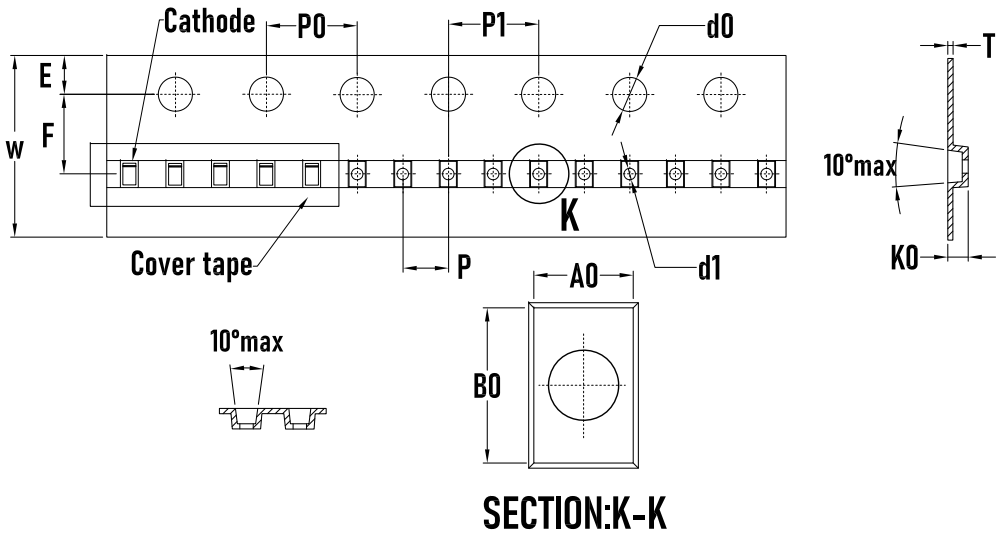
P-Channel MOSFET

Outline Drawing - DFN1006-3L



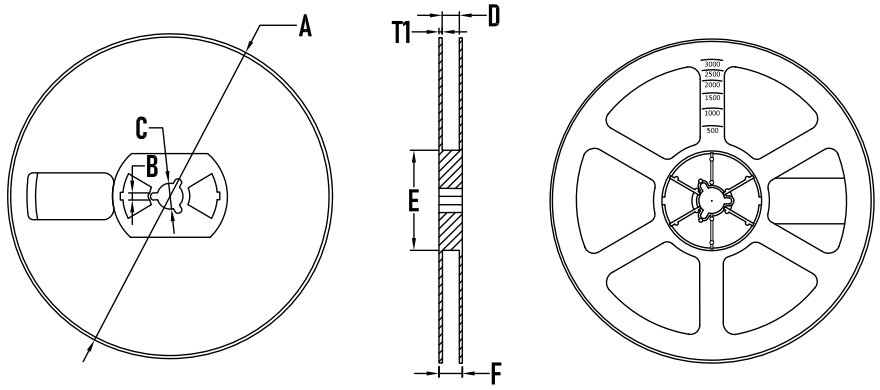
SYMBOL	MILLIMETER		
	MIN.	Typ.	MAX.
A	0.40	–	050
A2	0.00	–	.05
b1	0.10	0.15	0.20
b2	0.20	0.25	0.30
D	0.95	1.00	1.05
E	0.55	0.60	0.65
e1	0.350BSC		
e2	0.675BSC		
L1	0.20	0.30	0.40
L2	0.40	0.50	0.60

Packaging Tape - DFN1006



SYMBOL	MILLIMETER
A0	0.71±0.05
B0	1.11±0.05
d0	$1.5^{+0.1}_{-0}$
d1	0.50±0.05
E	1.75±0.10
F	3.50±0.05
K0	0.56±0.05
P	2.00±0.05
P0	4.00±0.10
P1	2.00±0.05
W	$8.00^{+0.03}_{-0.01}$
T	0.2±0.015

Packaging Reel



SYMBOL	MILLIMETER
A	178±1
B	3.5±0.2
C	14.3±0.2
D	9.8^{+2}_{-1}
E	54.5±0.5
F	12.4±0.2
T1	1.0±0.2
Quantity	10000PCS

BORN SEMICONDUCTOR , INC. ALL RIGHT RESERVED

Specifications are subject to change without notice.
Please refer to http://*www.born-tw.com* for current information.

Revision: 2022-Jan-1-A