

BN3400J

N-Channel MOSFET

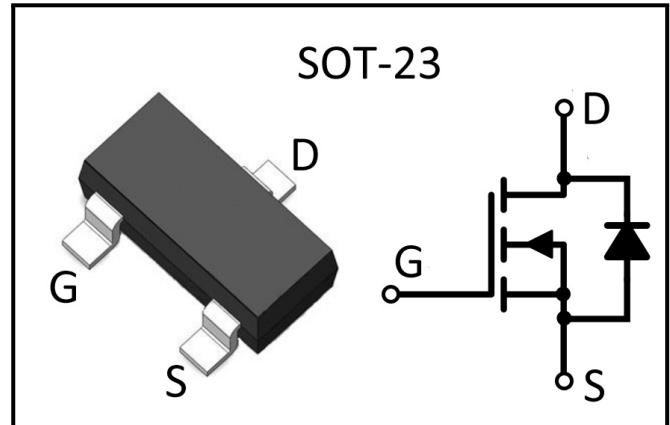
Features

- $V_{DS}=30V$
- $I_D=5.8A$
- $R_{DS(ON)} @ V_{GS}=10V, TYP=20m\Omega$
- $R_{DS(ON)} @ V_{GS}=4.5V, TYP=22m\Omega$
- $R_{DS(ON)} @ V_{GS}=2.5V, TYP=26m\Omega$

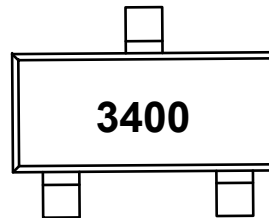
Description

- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance
- SOT-23 for Surface Mount Package.

Package



Marking



Ordering information

Order code	Package	Marking	Base qty	Delivery mode
BN3400J	SOT-23	3400	3K	Tape and reel

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		± 12	V
I_D	Continuous Drain Current		5.8	A
I_{DM}	Pulsed Drain Current		20	A
P_D	Maximum Power Dissipation	$T_A = 25^{\circ}C$	0.72	W
T_J	Junction		-55 to + 150	$^{\circ}C$
T_{stg}	Storage Temperature		-55 to + 150	$^{\circ}C$



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Electrical Characteristics @T_A=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static						
BV _{DS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250uA	30	—	—	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250uA	0.5	0.9	1.5	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 30V, V _{GS} = 0V	—	—	1	uA
I _{GSS}	Gate Body Leakage	V _{GS} = ±12V, V _{DS} = 0V	—	—	±100	nA
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} = 10V, I _D = 5A	—	20	26	mΩ
		V _{GS} = 4.5V, I _D =4.5A	—	22	30	
		V _{GS} = 2.5V, I _D = 4A	—	26	35	
gfs	Forward transconductance ^a	V _{DS} = 5V, I _D = 5A	—	33	—	s
Dynamic ^b						
C _{iss}	Input Capacitance	V _{DS} = 15V,f=1MHZ V _{GS} = 0V,	—	630	—	pF
C _{Oss}	Output Capacitance		—	76	—	
C _{Oss}	Reverse transfer capacitance		—	55	—	
Switching						
t _{d(on)}	Turn-On Delay Time	V _{DS} = 15V, V _{GS} = 10V, R _L =2.6Ω, R _{GEN} = 3Ω	—	3	—	ns
t _r	Rise time		—	2.5	—	
t _{d(off)}	Turn-Off Delay Time		—	25	—	
t _f	Fall time		—	4	—	
Q _g	Total gate charge	V _{DS} =15V,I _D =5.0A V _{GS} =4.5V	—	6	—	nC
Q _{gs}	Gate-source charge		—	1.3	—	
Q _{gd}	Gate-drain charge		—	1.8	—	
Source-Drain Diode						
V _{SD}	Diode Forward Voltage	I _S = 1A,V _{GS} = 0V	—	0.7	1.0	V

Notes: a.Pulse test pulse width ≤300us, duty cycle ≤ 2%.

b.Guaranteed by design, not subject to production testing



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

Figure 1 :Output Characteristics

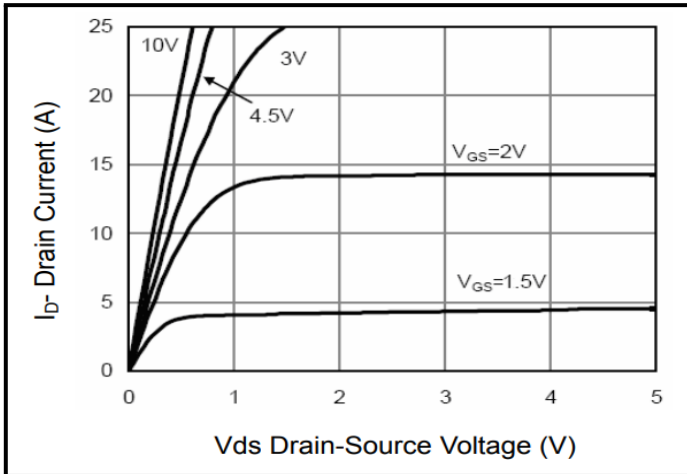


Figure 2 :Transfer Characteristics

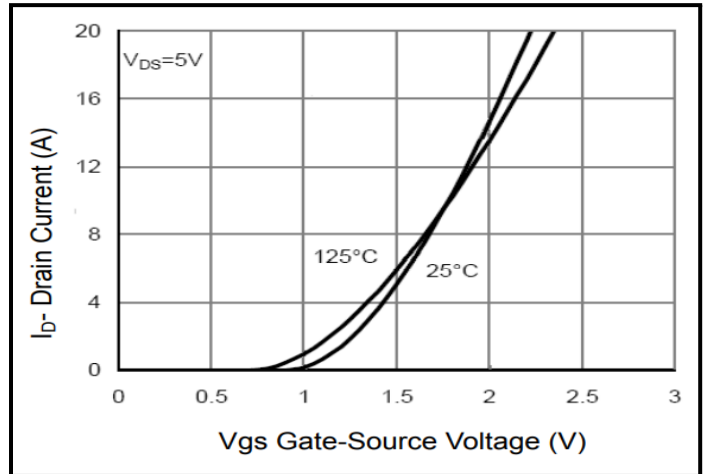


Figure 3 :On-Resistance vs. Drain Current

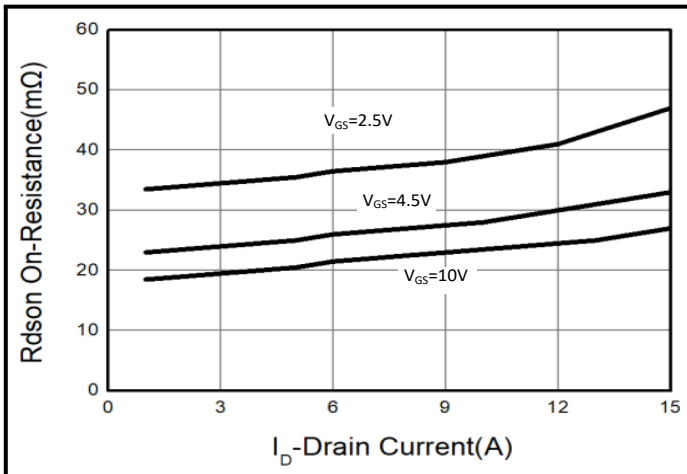


Figure 4 :Capacitance Characteristic

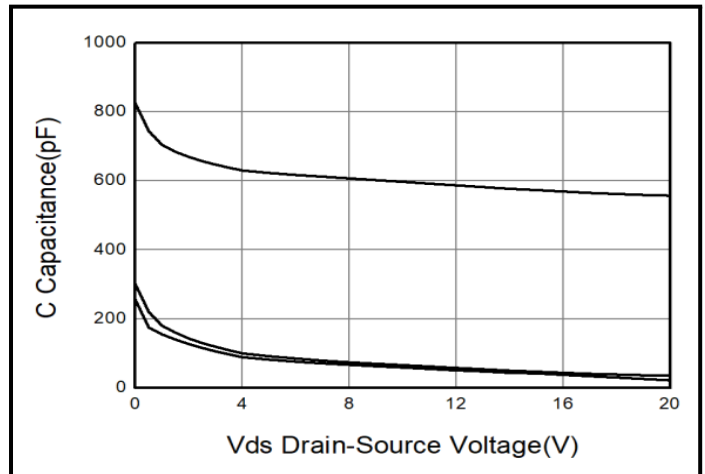


Figure 5 :Is--Vsd

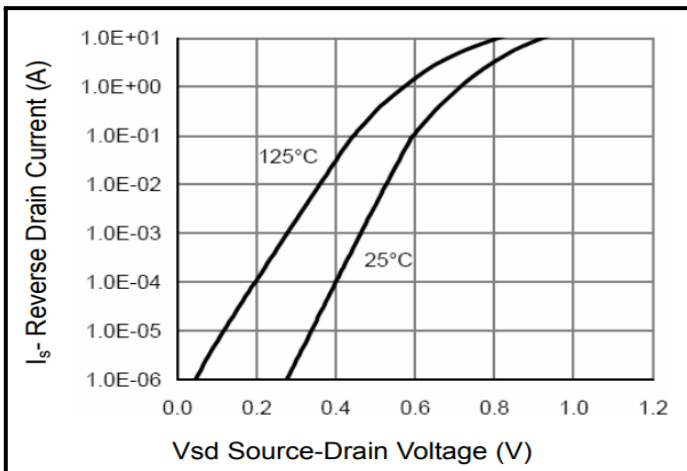
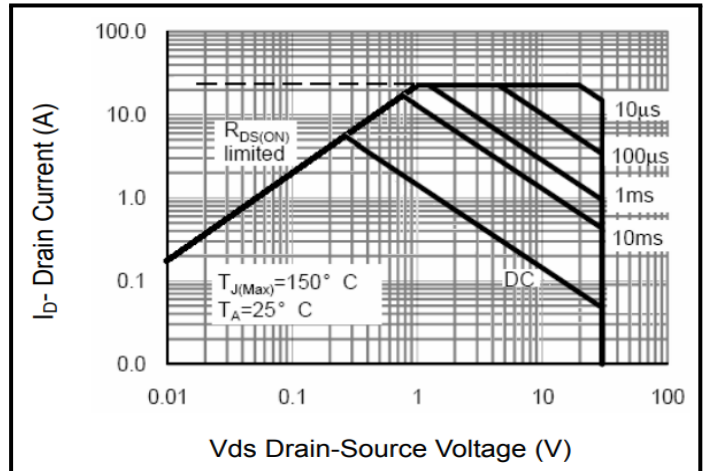


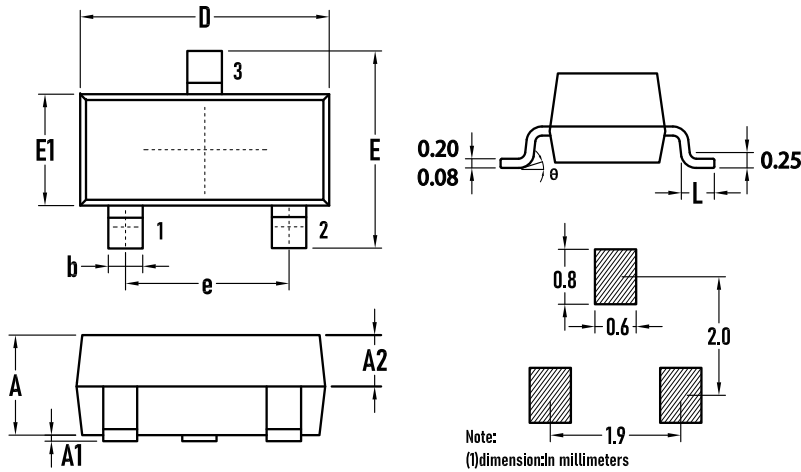
Figure 6 :Safe Operation Area



BN3400J

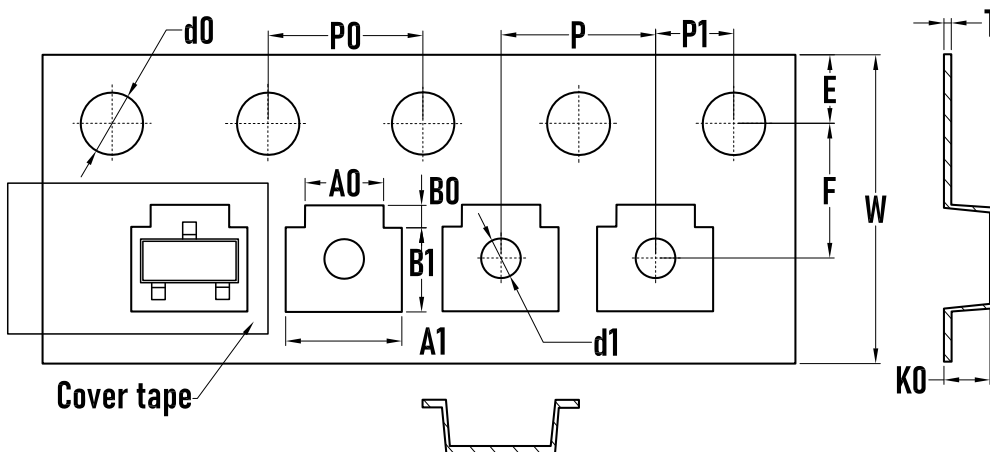
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Outline Drawing - SOT-23



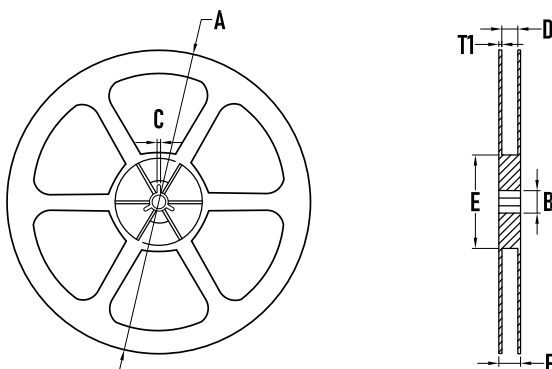
SYMBOL	MILLIMETER		
	MIN.	Typ.	MAX.
A	0.90	1.00	1.10
A1	0.01	—	0.10
A2	0.50	0.60	0.70
D	2.80	2.90	3.00
b	0.25	0.35	0.45
E	2.10	2.30	2.50
E1	1.20	1.30	1.40
e	1.80	1.90	2.00
L	0.25	0.35	0.45
θ	0	—	8°

Packaging Tape - SOT-23



SYMBOL	MILLIMETER
A0	2.10±0.10
A1	3.10±0.10
B0	0.65±0.10
B1	2.75±0.10
d0	1.55±0.10
d1	1.00±0.05
E	1.75±0.10
F	3.50±0.10
K0	1.10±0.10
P	4.00±0.10
P0	4.00±0.10
P1	2.00±0.10
W	8.00±0.30
T	0.20 ±0.05

Packaging Reel



SYMBOL	MILLIMETER
A	177.8±0.2
B	3.1
C	13.50
D	9.6±0.3
E	75±0.2
F	12.3±0.3
T1	1.0±0.2
Quantity	3000PCS

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Specifications are subject to change without notice.

Please refer to <http://www.born-tw.com> for current information.

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