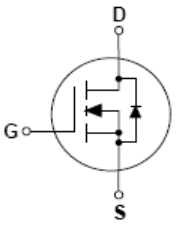
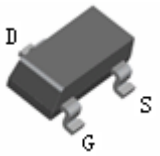
P-Channel High Density Trench MOSDET BL**3401**

FEATURES

- Super high dense cell trench design for low $R_{DS(ON)}$.
- Rugged and Reliable.
- Electrostatic Sensitive Devices.

Lead-free





SOT-23

APPLICATIONS

- P-channel enhancement mode effect transistor.
- Switching application.

ORDERING INFORMATION

Type No.	Marking	Package Code
BL3401	3401	SOT-23

MAXIMUM RATING @ Ta=25℃ unless otherwise specified

Symbol	**Parameter**	**Value**	**Units**
V_{DSS}	Drain-Source voltage	-30	V
V_{GSS}	Gate -Source voltage	±12	V
I_D I_{DM}	Drain Current - Continuous [a] @ TA = 25 ℃ -Pulse[b]	-4.2 -16	A
I_S	Drain - Source Diode Forward Current [a]	-2.2	A
P_D	Power Dissipation	1.25	W
$R_{\theta JA}$	Thermal resistance,Junction-to-Ambient	75	℃/W
T_J, Tstg	Junction and Storage Temperature	-55 to +150	℃

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ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
STATIC PARAMETERS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_D=-250μA	-30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V, V_{GS}=0V	-	-	-1	μA
Gate-body Leakage	I_{GSS}	V_{DS}=0V, V_{GS}=-12V	-	-	-100	nA
ON CHARACTERISTICS[b]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-0.7	-1.0	-1.3	V
Static drain-Source on-resistance	$R_{DS(ON)}$	V_{GS}=-10V,I_D=-4.2A V_{GS}=-4.5V,I_D=-4.0A V_{GS}=-2.5V,I_D=-1.0A	- -	37 36 67	50 65 120	mΩ
DRAIN-SOURCE DIODE CHARACTERISTICS[b]						
Drain-Source diode forward voltage	V_{SD}	V_{GS}=0V,I_D=-1A	-	-	-1.0	V
DYNAMIC CHARACTERISTICS[C]						
Input capacitance	C_{ISS}	V_{DS}=15V,V_{GS}=0V,f=1.0MHz	-	1325	-	pF
Output capacitance	C_{OSS}		-	172	-	
Reverse transfer capacitance	C_{RSS}		-	140	-	
SWITCHING CHARACTERISTICS[C]						
Turn-On Delay Time	$t_{D(ON)}$	V_{DS} = -15V, I_D= -1A R_L =15Ω, V_{GEN}= -4.5V, R_{GEN}= 10Ω	-	5	-	ns
Rise Time	tr		-	3	-	ns
Turn-Off Delay Time	$t_{D(OFF)}$		-	30	-	ns
Fall Time	tf		-	10	-	ns
Total Gate Charge	Qg	V_{DS} = -15V I_D= -1A V_{GS}= -10V,	-	27.8	-	nC
Gate-Source Charge	Qgs		-	3.2	-	nC
Gate-Drain Charge	Qgd		-	2.72	-	nC

NOTE:

b. Pulse Test: Pulse width ≤ 300us , Duty Cycle ≤ 2% .

C. Guaranteed by design , not subject to production testing .

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TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

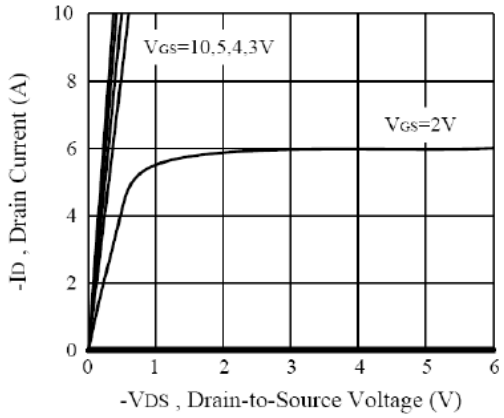

Figure 1. Output Characteristics

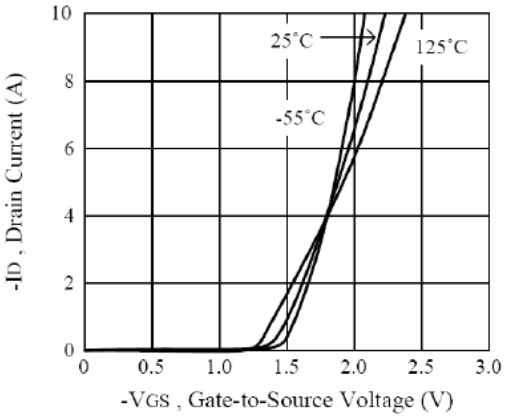

Figure 2. Transfer Characteristics

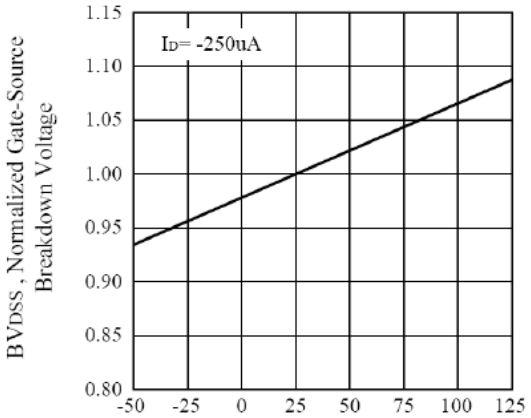

Figure 6. Breakdown Voltage Variation with Temperature

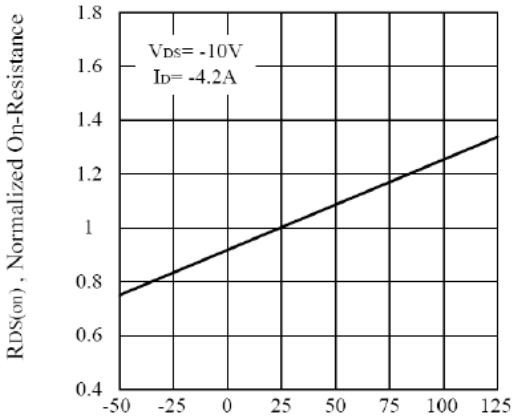

Figure 4. On-Resistance Variation with Temperature

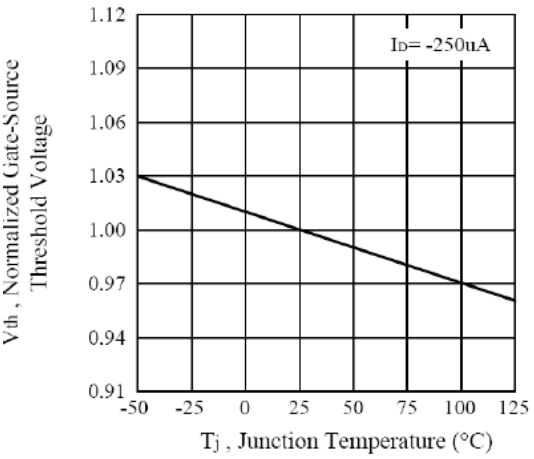

Figure 5. Gate Threshold Variation with Temperature

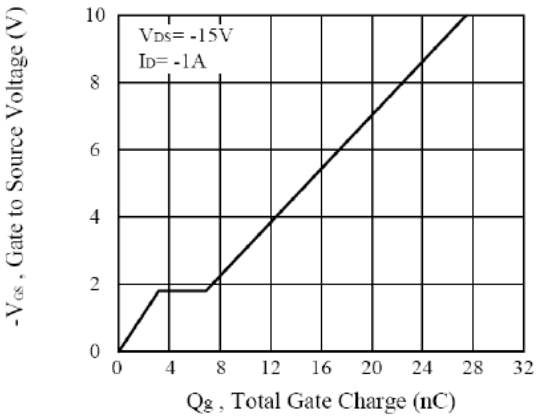

Figure 7. Gate Charge

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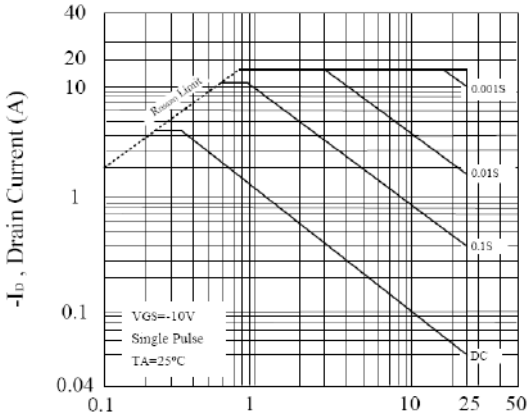

Figure 9. Maximum Safe Operating Area

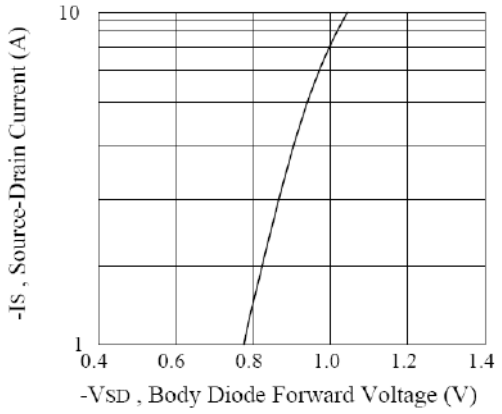

Figure 8. Body Diode Forward Voltage Variation with Source Current

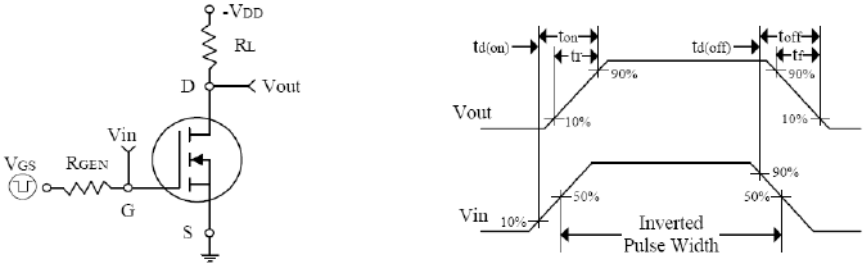

Figure 10. Switching Test Circuit and Switching Waveforms

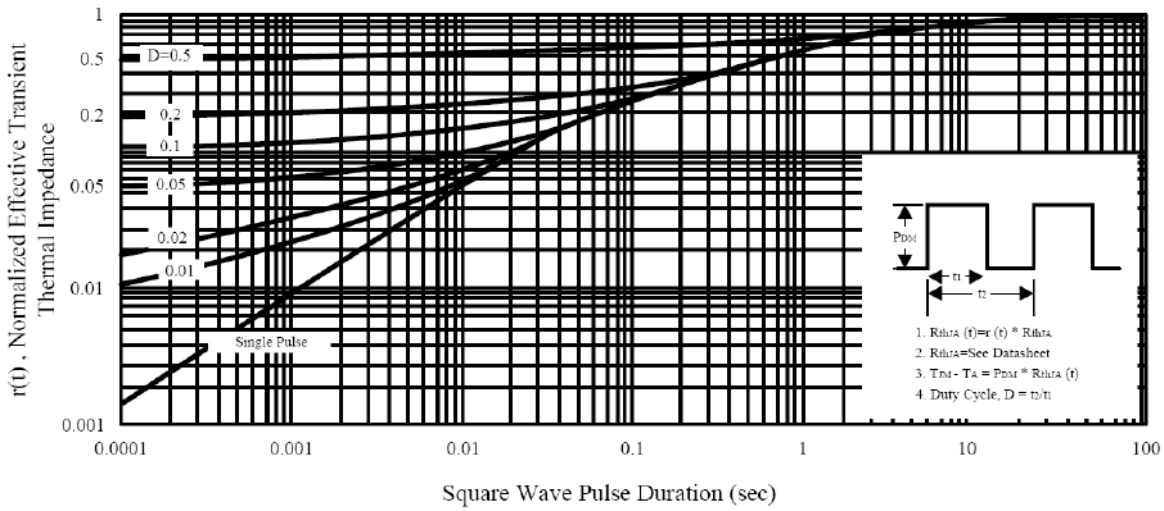

Figure 11. Normalized Thermal Transient Impedance Curve

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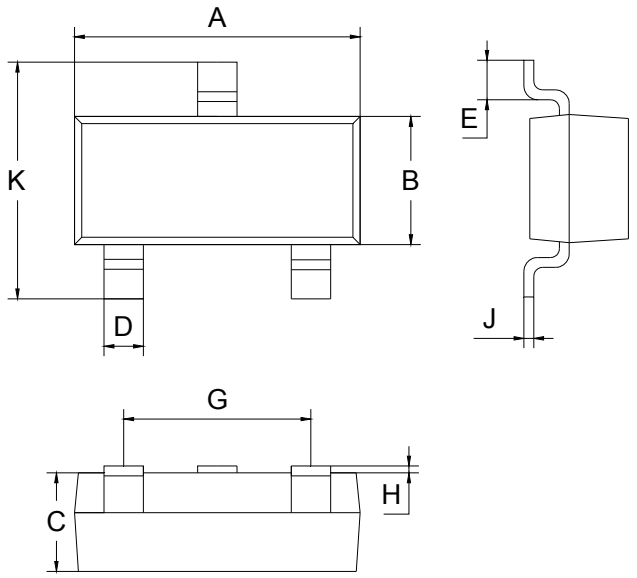
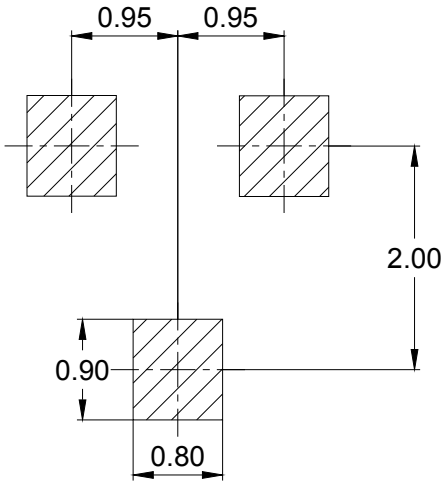
PACKAGE OUTLINE

Plastic surface mounted package SOT-23



SOT-23		
Dim	Min	Max
A	2.70	3.10
B	1.10	1.50
C	1.0 Typical	
D	0.4 Typical	
E	0.35	0.48
G	1.80	2.00
H	0.02	0.1
J	0.1 Typical	
K	2.20	2.60
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit : mm

PACKAGE INFORMATION

Device	Package	Shipping
BL3401	SOT-23	3000/Tape&Reel