

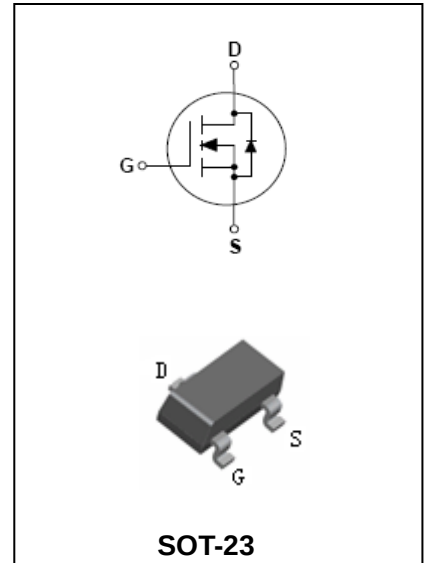
N-Channel Enhancement Mode Field Effect Transistor

BL3400

FEATURES

- Electrostatic Sensitive Devices.
- $V_{DS} (V) = 30V$
- $I_D = 5.7A$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 26.5m\Omega$ ($V_{GS} = 10V$)
 $R_{DS(ON)} < 32m\Omega$ ($V_{GS} = 4.5V$)
 $R_{DS(ON)} < 48m\Omega$ ($V_{GS} = 2.5V$)

HF



APPLICATIONS

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

ORDERING INFORMATION

Type No.	Marking	Package Code
BL3400	R0	SOT-23

MAXIMUM RATING @ $T_a=25^\circ C$ unless otherwise specified

Symbol	Parameter	Value	Units
V_{DSS}	Drain-Source voltage	30	V
V_{GSS}	Gate -Source voltage	± 12	V
I_D	Continuous Drain Current ^A @ $T_A = 25^\circ C$ @ $T_A = 70^\circ C$	5.7 4.7	A
I_{DM}	Pulsed Drain Current ^a	25	A
P_D	Power Dissipation	1.4	W
$R_{\theta JA}$	Thermal resistance,Junction-to-Ambient	70	$^\circ C/W$
T_J, T_{stg}	Junction and Storage Temperature	-55 to +150	$^\circ C$

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ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
STATIC PARAMETERS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$	-	-	1	μA
Gate-body Leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 12V$	-	-	100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.7	1.0	1.4	V
On state drain current	$I_{D(ON)}$	$V_{DS}=5V, V_{GS}=4.5V$	25	-	-	A
Static drain-Source on-resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=5.7A$	-	22	26.5	m Ω
		$V_{GS}=4.5V, I_D=5A$	-	25.4	32	
		$V_{GS}=2.5V, I_D=3A$	-	34	48	
Forward Transconductance	g_{FS}	$V_{DS}=5V, I_D=5.7A$	-	26	-	S
Drain-Source diode forward voltage	V_{SD}	$V_{GS}=0V, I_S=1A$	-	0.72	1.0	V
Maximum Body-Diode Continuous Current	I_S		-	-	2.0	A
DYNAMIC CHARACTERISTICS^C						
Input capacitance	C_{ISS}	$V_{DS}=15V, V_{GS}=0V, f=1.0MHz$	-	900	1100	pF
Output capacitance	C_{OSS}		-	88	-	
Reverse transfer capacitance	C_{RSS}		-	65	-	
Gate resistance	R_g	$V_{DS}=0V, V_{GS}=0V, f=1.0MHz$		0.95	1.5	Ω
SWITCHING CHARACTERISTICS^C						
Turn-On Delay Time	$t_{D(ON)}$	$V_{DS} = 15V,$ $R_L = 2.6\Omega,$ $V_{GS}= 10V,$ $R_{GEN}= 3\Omega$	-	3.2	-	ns
Rise Time	t_r		-	3.5	-	ns
Turn-Off Delay Time	$t_{D(OFF)}$		-	21.5	-	ns
Fall Time	t_f		-	2.7	-	ns
Total Gate Charge	Q_g	$V_{DS} = 15V$ $I_D= 5.7A$ $V_{GS}= 4.5V,$	-	10	13	nC
Gate-Source Charge	Q_{gs}		-	1.8	-	nC
Gate-Drain Charge	Q_{gd}		-	3.75	-	nC
Body Diode Reverse Recovery Time	t_{rr}	$I_F=5.7A, dI/dt=100A/\mu s$	-	16.8	20	nS
Body Diode Reverse Recovery Charge	Q_{rr}	$I_F=5.7A, dI/dt=100A/\mu s$	-	8	-	nC

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TYPICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified

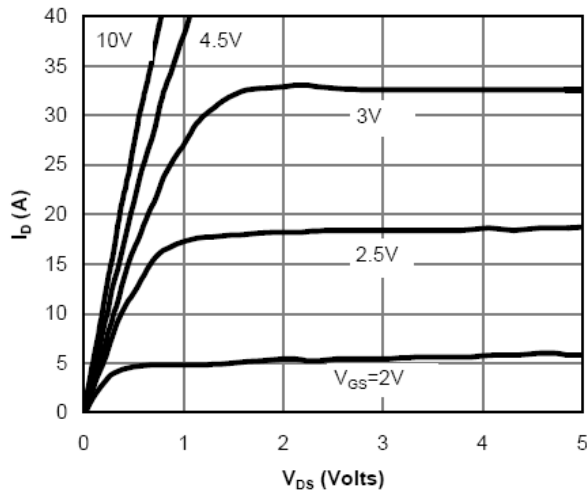


Figure 1: On-Region Characteristics

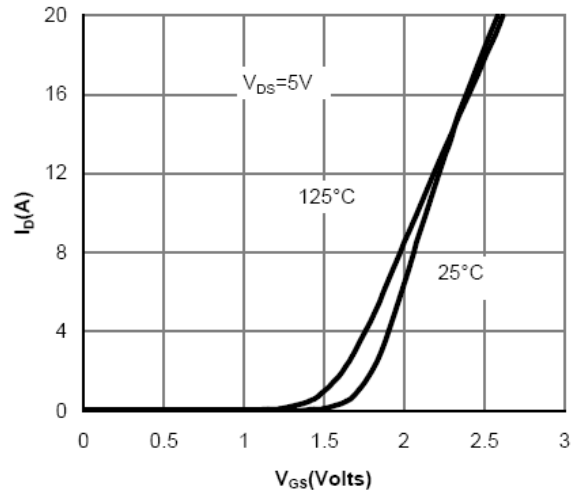


Figure 2: Transfer Characteristics

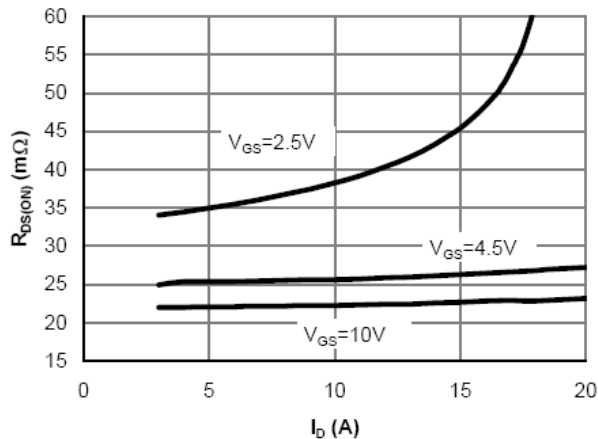


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

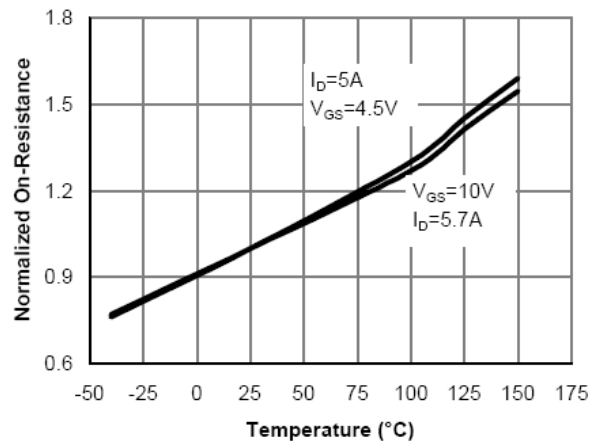


Figure 4: On-Resistance vs. Junction Temperature

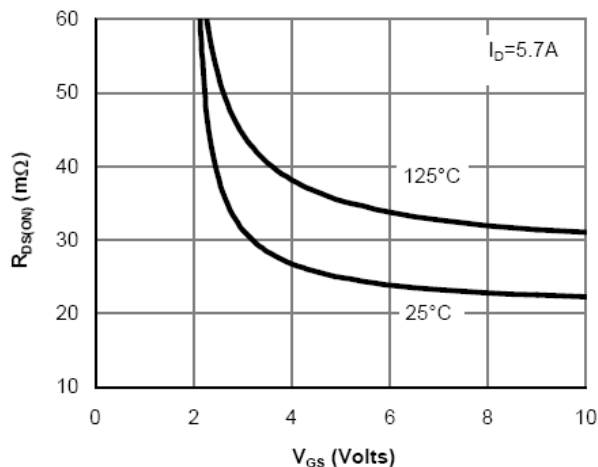


Figure 5: On-Resistance vs. Gate-Source Voltage

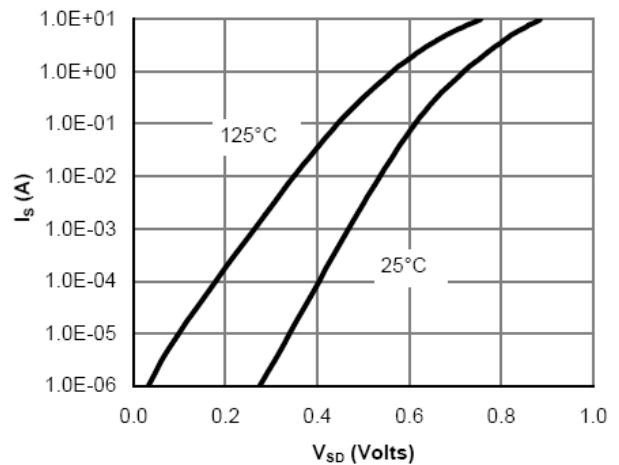


Figure 6: Body-Diode Characteristics

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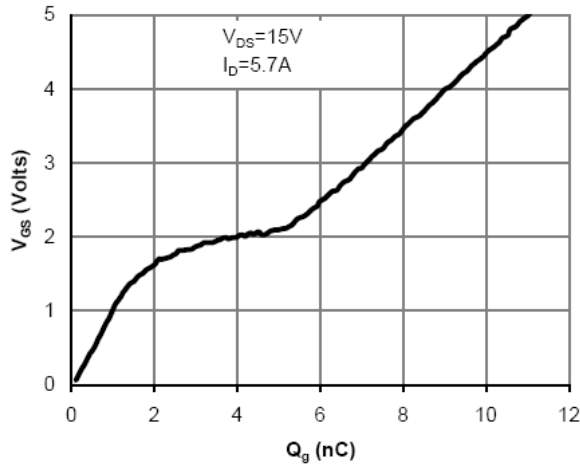


Figure 7: Gate-Charge Characteristics

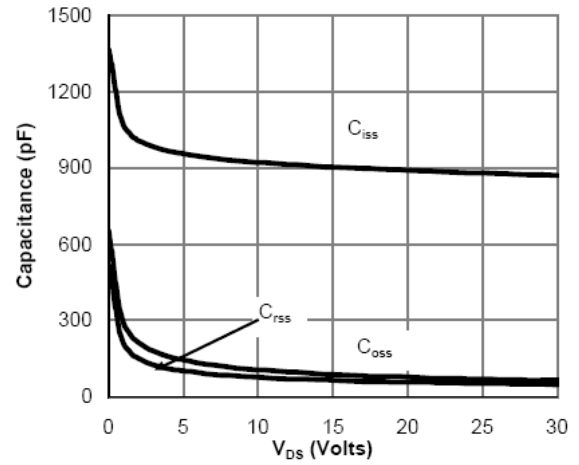


Figure 8: Capacitance Characteristics

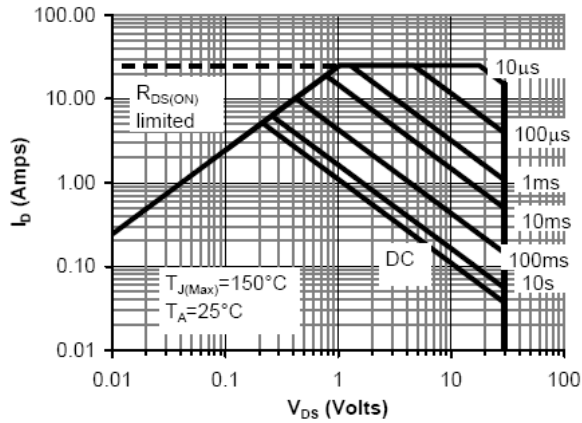


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

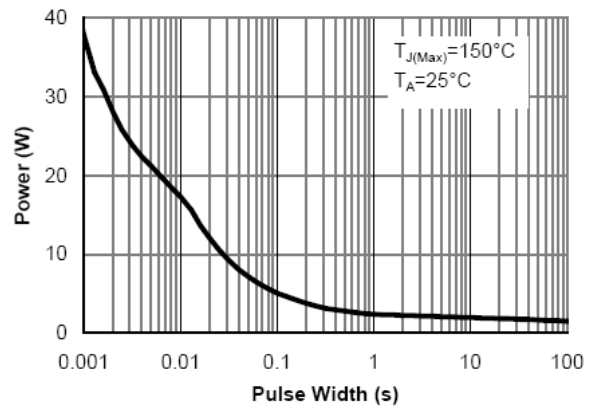


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

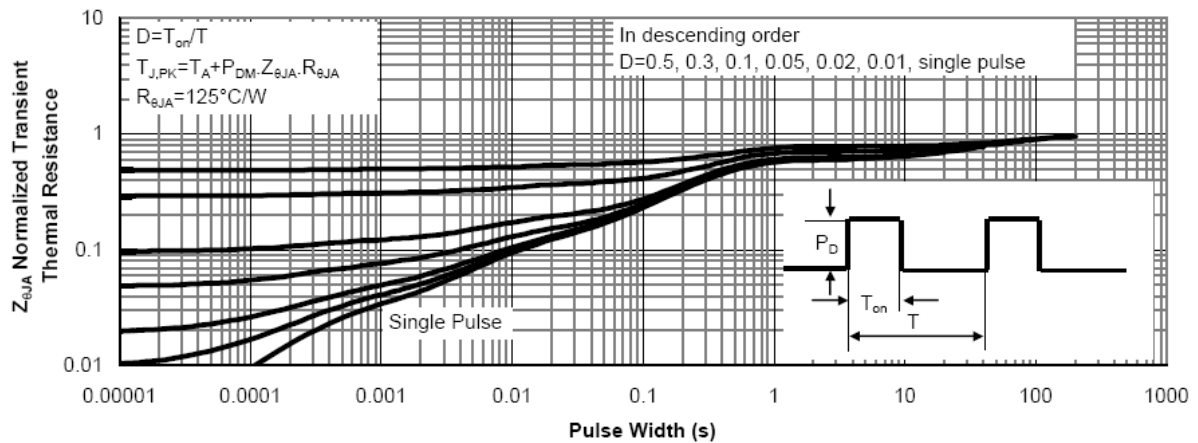


Figure 11: Normalized Maximum Transient Thermal Impedance

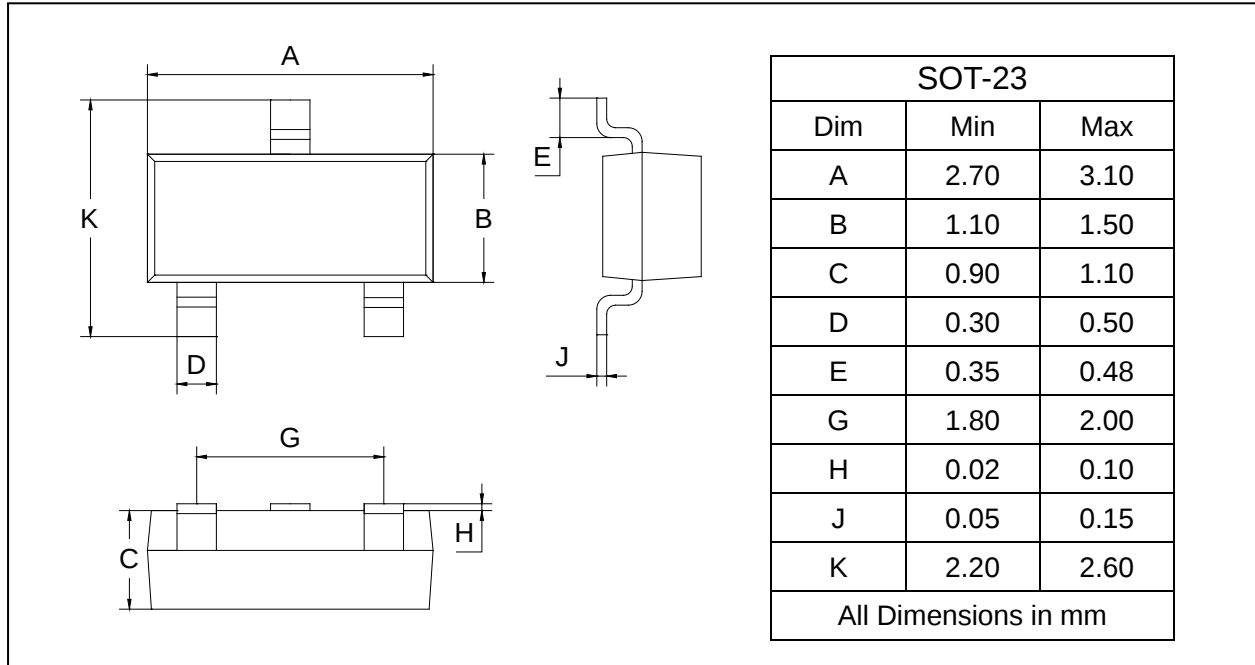
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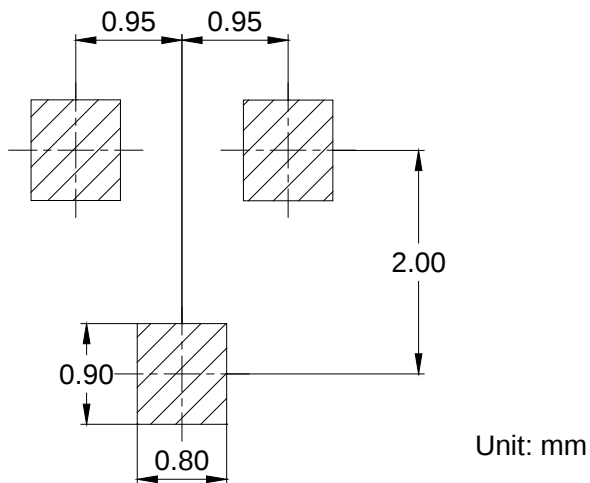
PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
BL3400	SOT-23	3000 pcs / Tape & Reel