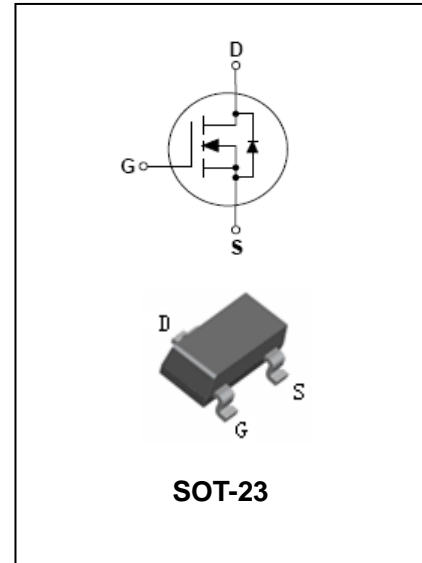


# N-Channel Enhancement Mode Field Effect Transistor

# BL3404

## FEATURES

- Electrostatic Sensitive Devices.
- $V_{DS} (V) = 30V$
- $I_D = 5.8A$
- $R_{DS(ON)} < 25m\Omega$  ( $V_{GS} = 10V$ )  
 $R_{DS(ON)} < 35m\Omega$  ( $V_{GS} = 4.5V$ )



## APPLICATIONS

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

## ORDERING INFORMATION

Type No.	Marking	Package Code
BL3404	3404	SOT-23

## MAXIMUM RATING @ Ta=25°C unless otherwise specified

Symbol	Parameter	Value	Units	
$V_{DSS}$	Drain-Source voltage	30	V	
$V_{GSS}$	Gate -Source voltage	$\pm 20$	V	
$I_D$	Continuous Drain Current <sup>A</sup>	@ TA = 25 °C @ TA = 70 °C	5.8 4.9	A
$I_{DM}$	Pulsed Drain Current <sup>a</sup>	64	A	
$P_D$	Power Dissipation	0.35	W	
$T_J, T_{stg}$	Junction and Storage Temperature	-55 to +150	°C	



N-Channel Enhancement Mode Field Effect Transistor

**BL3404**

**ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified**

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
<b>STATIC PARAMETERS</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=24V, V_{GS}=0V$	-	-	1	$\mu A$
Gate-body Leakage	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 12V$	-	-	100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.5	2.1	2.6	V
On state drain current	$I_{D(ON)}$	$V_{DS}=5V, V_{GS}=4.5V$	64	-	-	A
Static drain-Source on-resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=5.8A$	-	18.4	25	m $\Omega$
		$V_{GS}=4.5V, I_D=4.8A$	-	24.5	35	
Forward Transconductance	gFS	$V_{DS}=5V, I_D=5.8A$	-	22	-	S
Drain-Source diode forward voltage	$V_{SD}$	$V_{GS}=0V, I_S=1A$	-	0.75	1.0	V
Maximum Body-Diode Continuous Current	$I_S$		-	-	2.5	A
<b>DYNAMIC CHARACTERISTICS<sup>C</sup></b>						
Input capacitance	$C_{ISS}$	$V_{DS}=15V, V_{GS}=0V, f=1.0MHz$	-	373	448	pF
Output capacitance	$C_{OSS}$		-	67	-	
Reverse transfer capacitance	$C_{RSS}$		-	41	-	
Gate resistance	Rg	$V_{DS}=0V, V_{GS}=0V, f=1.0MHz$		1.8	2.8	$\Omega$
<b>SWITCHING CHARACTERISTICS<sup>C</sup></b>						
Turn-On Delay Time	$t_{D(ON)}$	$V_{DS} = 15V,$ $R_L = 2.6\Omega,$ $V_{GS} = 10V,$ $R_{GEN} = 3\Omega$	-	4.5	6.5	ns
Rise Time	tr		-	2.4	-	ns
Turn-Off Delay Time	$t_{D(OFF)}$		-	14.8	-	ns
Fall Time	tf		-	2.5	-	ns
Total Gate Charge	Qg		$V_{DS} = 15V$	-	7.1	11
Gate-Source Charge	Qgs	$I_D = 5.8A$	-	1.4	-	nC
Gate-Drain Charge	Qgd	$V_{GS} = 10V,$	-	1.7	-	nC
Body Diode Reverse Recovery Time	trr	$I_F = 5.8A, dI/dt = 100A/\mu s$	-	10.5	12.6	nS
Body Diode Reverse Recovery Charge	Qrr	$I_F = 5.8A, dI/dt = 100A/\mu s$	-	4.5	-	nC

N-Channel Enhancement Mode Field Effect Transistor **BL3404**  
TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

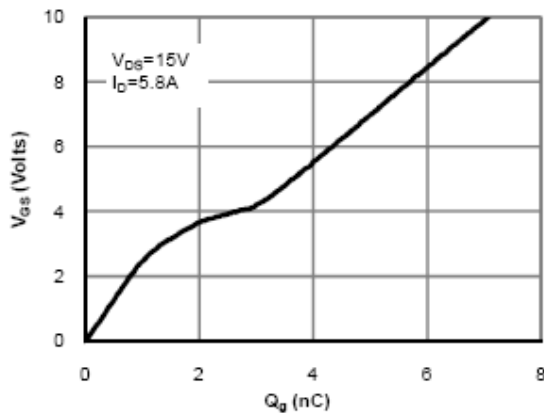


Figure 7: Gate-Charge Characteristics

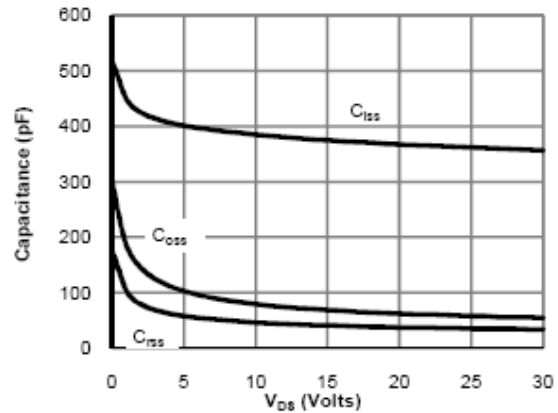


Figure 8: Capacitance Characteristics

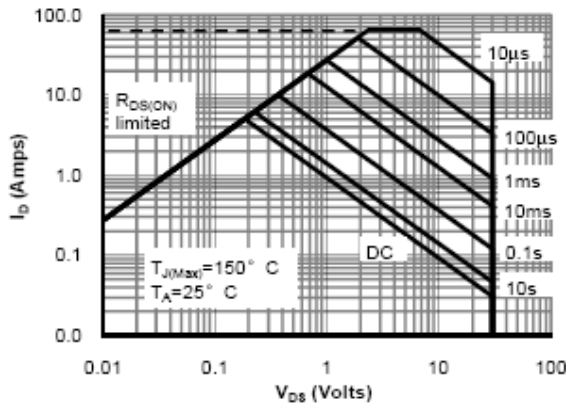


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

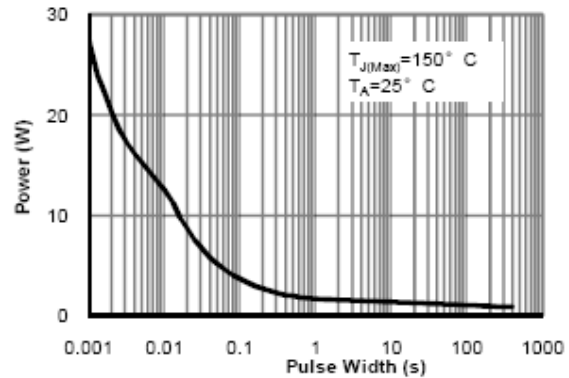


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

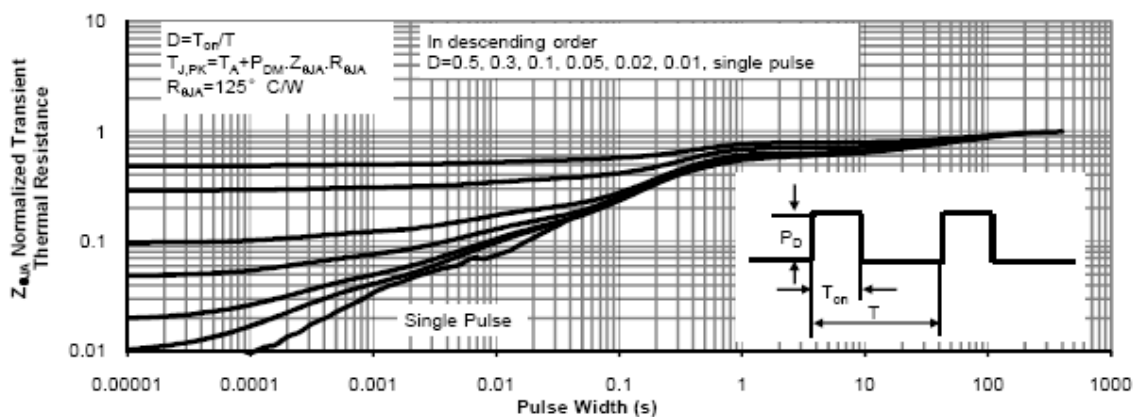


Figure 11: Normalized Maximum Transient Thermal Impedance

N-Channel Enhancement Mode Field Effect Transistor

BL3404

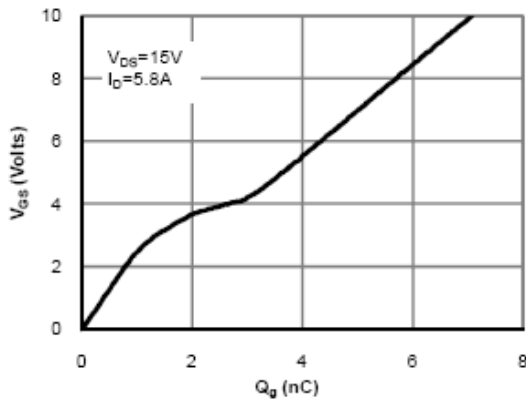


Figure 7: Gate-Charge Characteristics

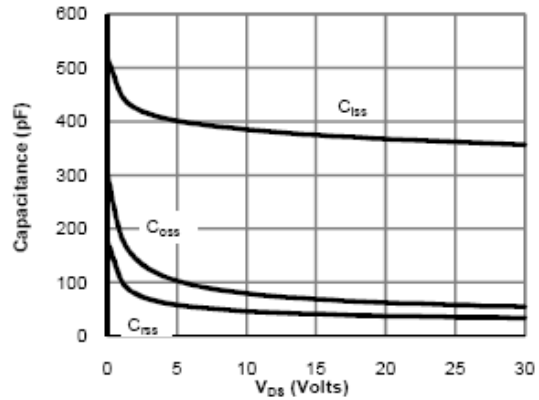


Figure 8: Capacitance Characteristics

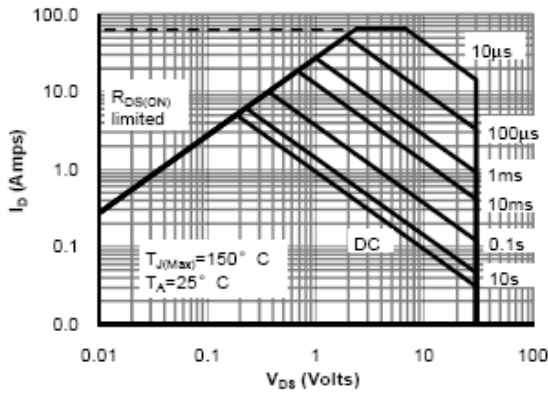


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

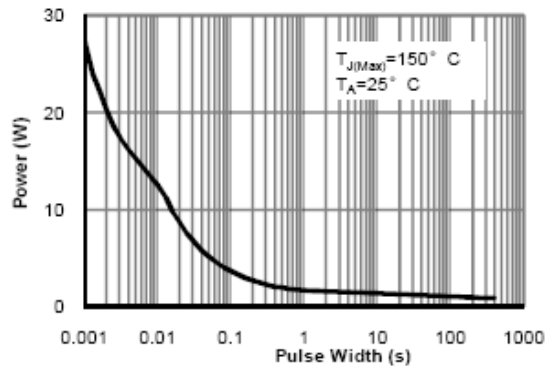


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

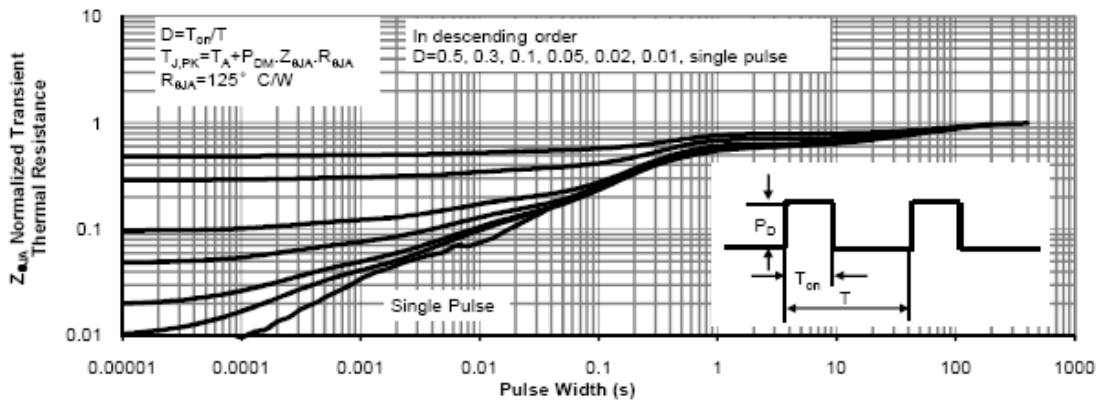


Figure 11: Normalized Maximum Transient Thermal Impedance



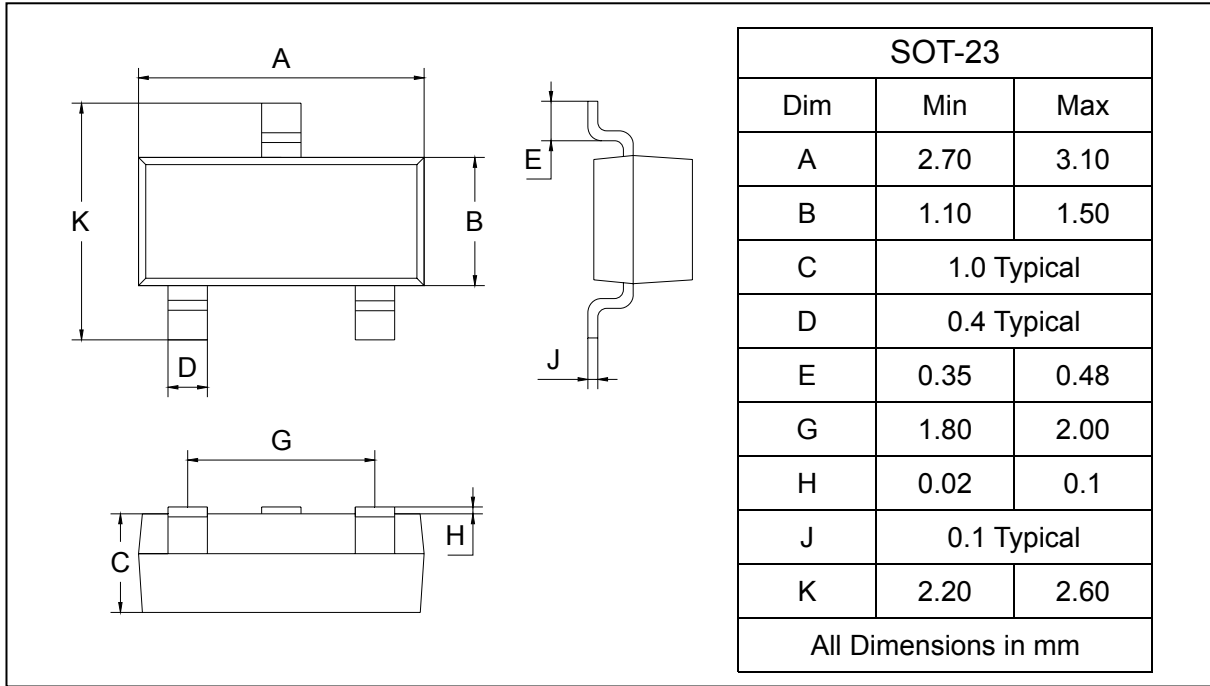
**N-Channel Enhancement Mode Field Effect Transistor**

**BL3404**

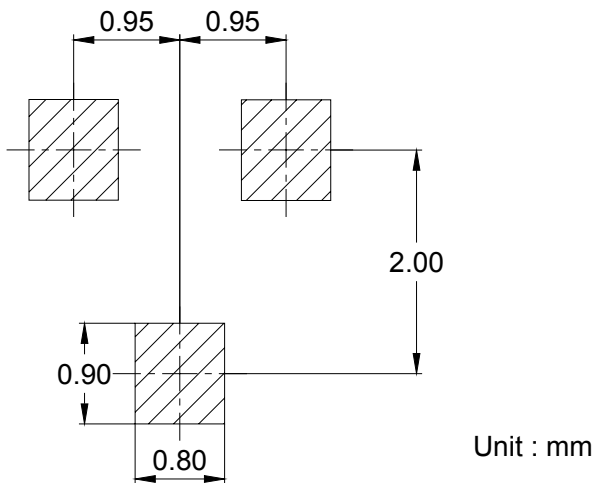
**PACKAGE OUTLINE**

Plastic surface mounted package

SOT-23



**SOLDERING FOOTPRINT**



**PACKAGE INFORMATION**

Device	Package	Shipping
BL3404	SOT-23	3000/Tape&Reel