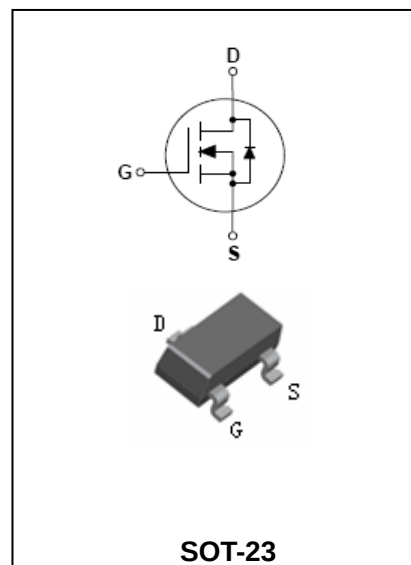


N-Channel Enhancement Mode Field Effect Transistor **BL3402**

FEATURES

- V_{DS} (V) = 30V
- I_D = 4 A
- $R_{DS(ON)} < 55m\Omega$ ($V_{GS} = 10V$)
 $R_{DS(ON)} < 70m\Omega$ ($V_{GS} = 4.5V$)
 $R_{DS(ON)} < 110m\Omega$ ($V_{GS} = 2.5V$)



APPLICATIONS

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

ORDERING INFORMATION

Type No.	Marking	Package Code
BL3402	3402	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	± 12	V
I_D	Continuous Drain Current ^A @ TA = 25 °C @ TA = 70 °C	4 3.4	A
I_{DM}	Pulsed Drain Current ^a	15	A
P_D	Power Dissipation	1.4	W
$R_{\theta JA}$	Thermal resistance,Junction-to-Ambient	70	°C/W
T_J, T_{stg}	Junction and Storage Temperature	-55 to +150	°C



N-Channel Enhancement Mode Field Effect Transistor **BL3402**

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}	$V_{DS}=24V, V_{GS}=0V$	-	-	1	μA
Gate-body Leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 12V$	-	-	100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.6	1.0	1.4	V
On state drain current	$I_{D(ON)}$	$V_{DS}=5V, V_{GS}=4.5V$	10	-	-	A
Static drain-Source on-resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=4A$	-	45	55	m Ω
		$V_{GS}=4.5V, I_D=3A$	-	55	70	
		$V_{GS}=2.5V, I_D=2A$	-	83	110	
Forward Transconductance	g_{FS}	$V_{DS}=5V, I_D=4A$	-	8	-	S
Drain-Source diode forward voltage	V_{SD}	$V_{GS}=0V, I_S=1A$	-	0.8	1.0	V
Maximum Body-Diode Continuous Current	I_S		-	-	2.5	A
DYNAMIC CHARACTERISTICS^C						
Input capacitance	C_{ISS}	$V_{DS}=15V, V_{GS}=0V, f=1.0MHz$	-	390	-	pF
Output capacitance	C_{OSS}		-	54.5	-	
Reverse transfer capacitance	C_{RSS}		-	41	-	
Gate resistance	R_g	$V_{DS}=0V, V_{GS}=0V, f=1.0MHz$		3		Ω
SWITCHING CHARACTERISTICS^C						
Turn-On Delay Time	$t_{D(ON)}$	$V_{DS} = 15V,$ $R_L = 3.75\Omega,$ $V_{GS} = 10V,$ $R_{GEN} = 6\Omega$	-	3.3	-	ns
Rise Time	t_r		-	1	-	ns
Turn-Off Delay Time	$t_{D(OFF)}$		-	21.7	-	ns
Fall Time	t_f		-	2.1	-	ns
Total Gate Charge	Q_g	$V_{DS} = 15V$ $I_D = 4A$ $V_{GS} = 4.5V,$	-	4.34	-	nC
Gate-Source Charge	Q_{gs}		-	0.6	-	nC
Gate-Drain Charge	Q_{gd}		-	1.38	-	nC
Body Diode Reverse Recovery Time	t_{rr}	$I_F=4A, dI/dt=100A/\mu s$	-	12	-	nS
Body Diode Reverse Recovery Charge	Q_{rr}	$I_F=4A, dI/dt=100A/\mu s$	-	6.3	-	nC

N-Channel Enhancement Mode Field Effect Transistor BL3402

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

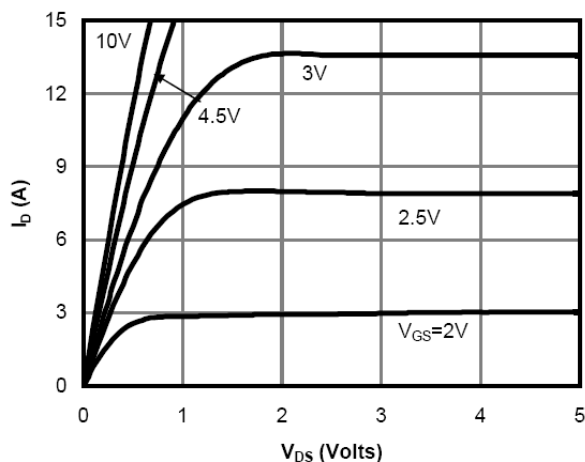


Fig 1: On-Region Characteristics

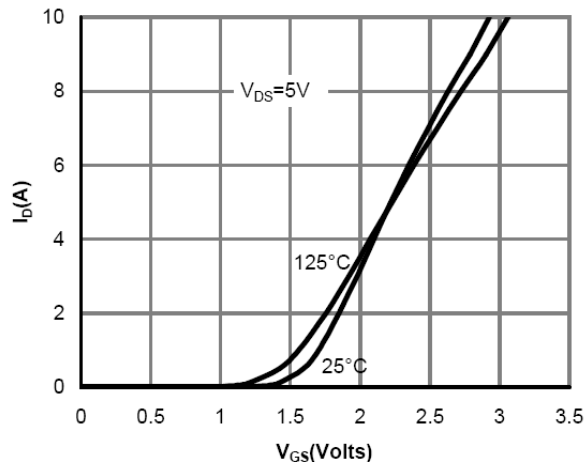


Figure 2: Transfer Characteristics

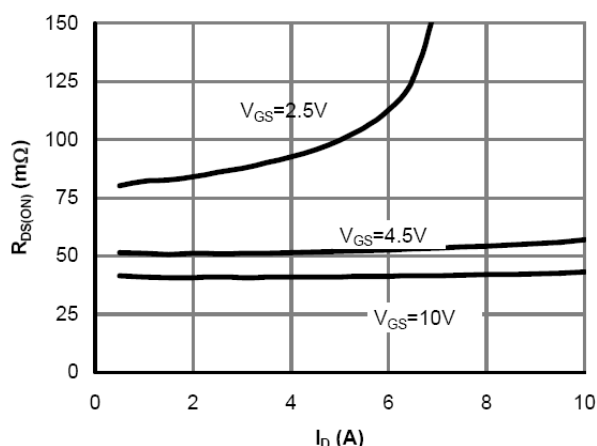


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

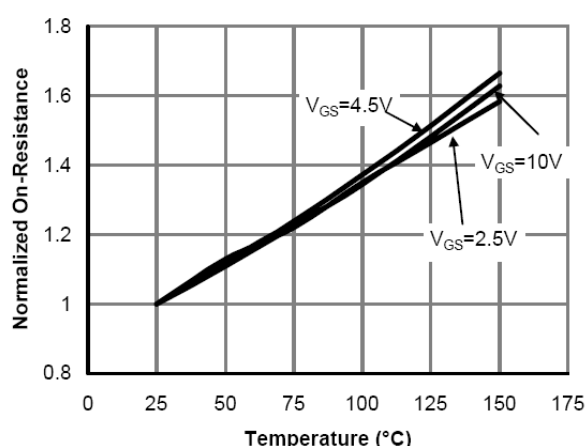


Figure 4: On-Resistance vs. Junction Temperature

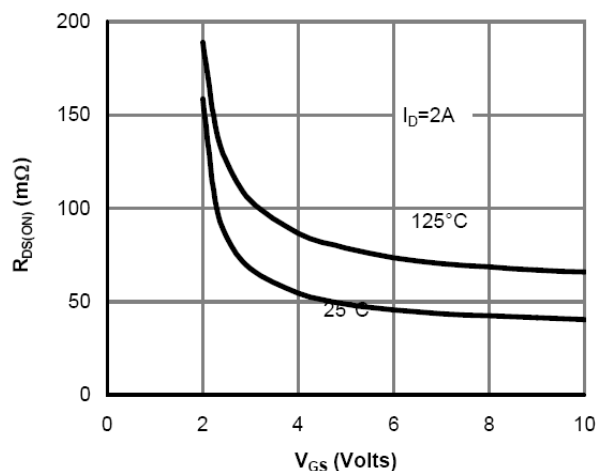


Figure 5: On-Resistance vs. Gate-Source Voltage

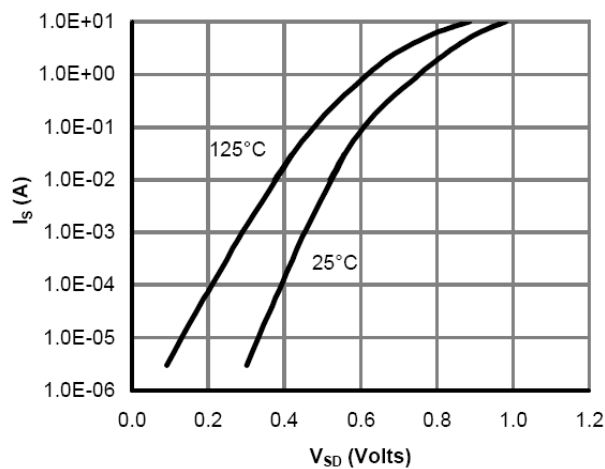


Figure 6: Body-Diode Characteristics

N-Channel Enhancement Mode Field Effect Transistor BL3402

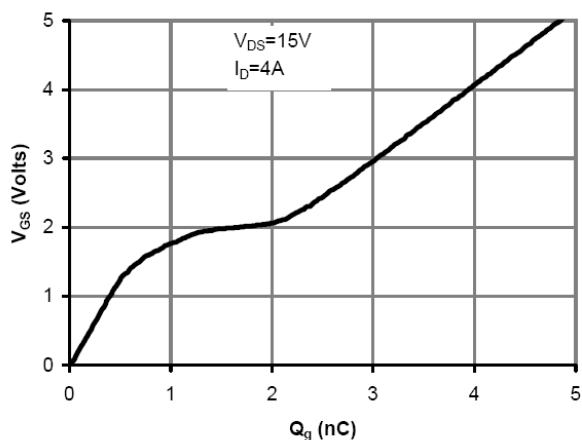


Figure 7: Gate-Charge Characteristics

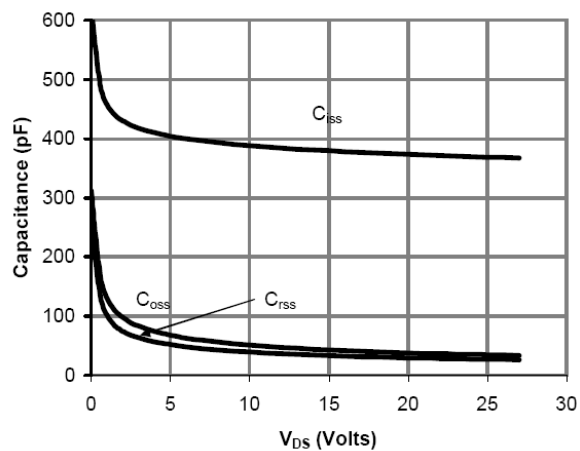


Figure 8: Capacitance Characteristics

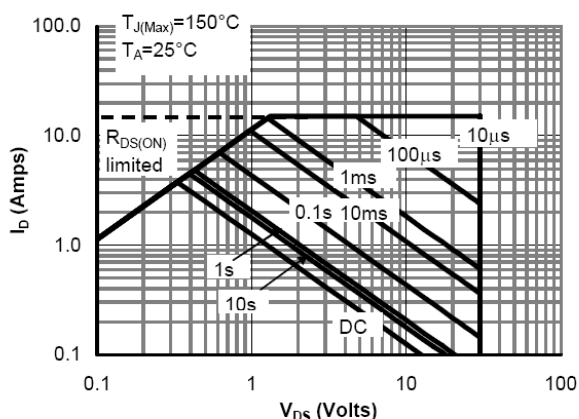


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

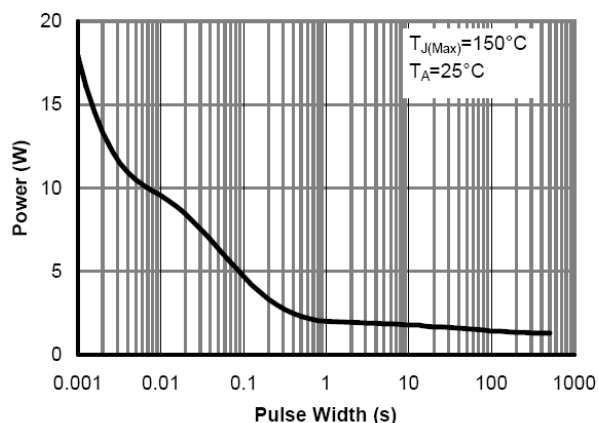


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

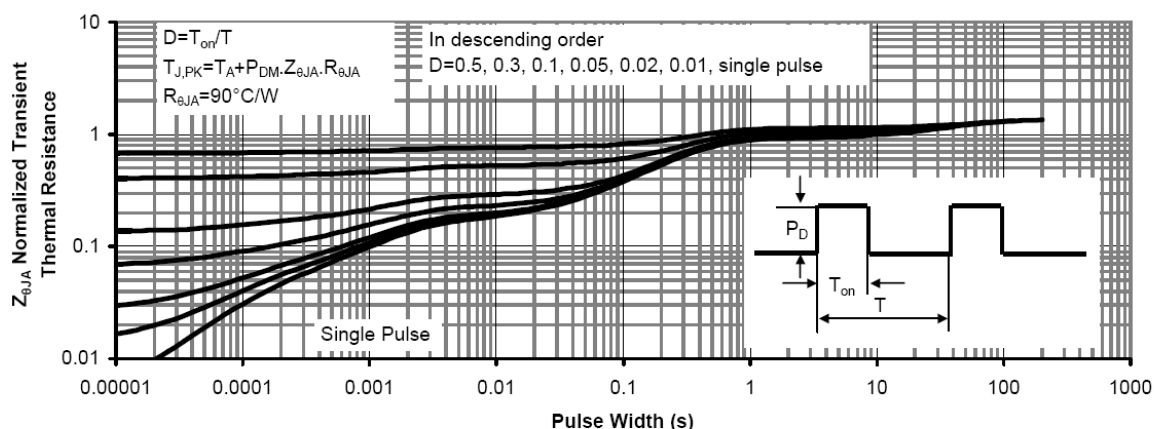


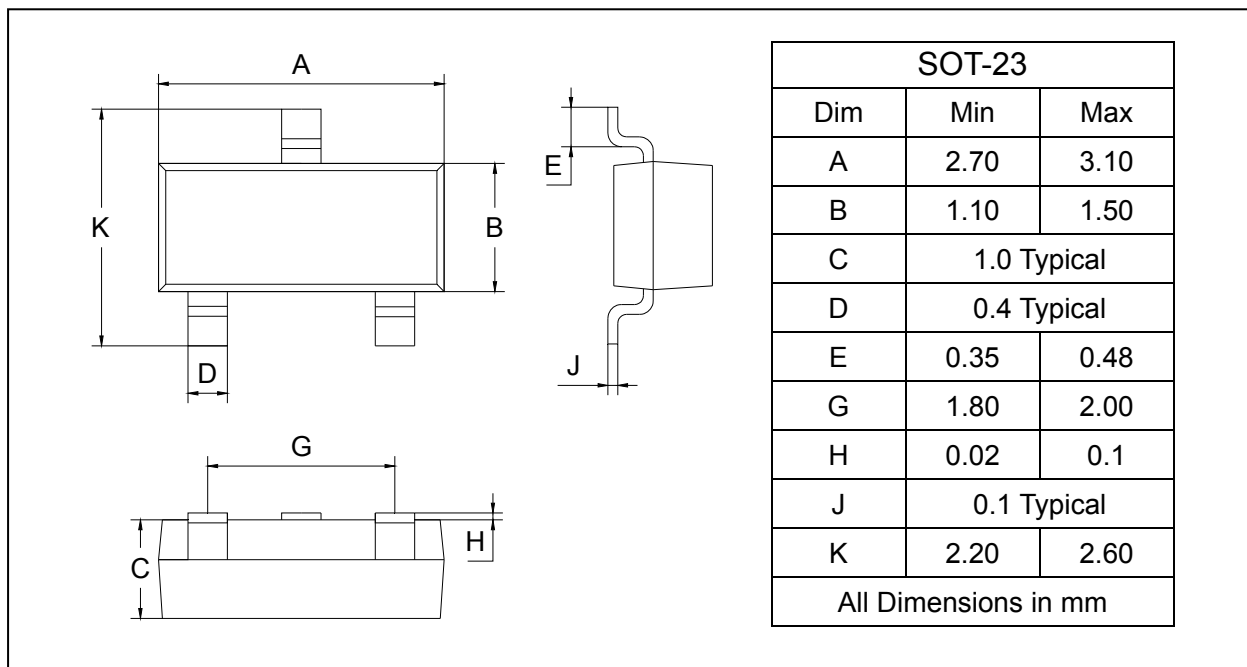
Figure 11: Normalized Maximum Transient Thermal Impedance

N-Channel Enhancement Mode Field Effect Transistor **BL3402**

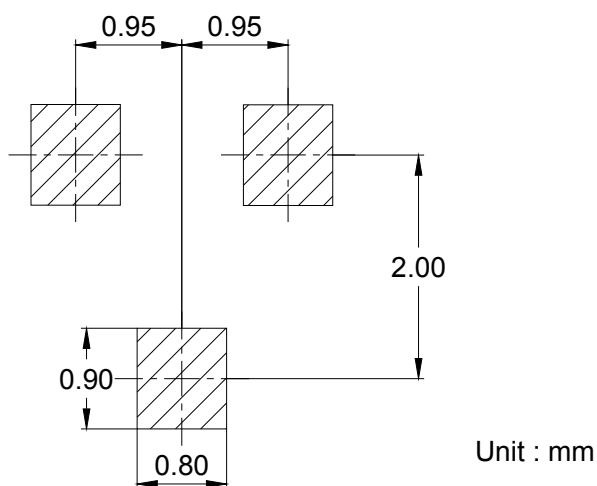
PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
BL3402	SOT-23	3000/Tape&Reel