

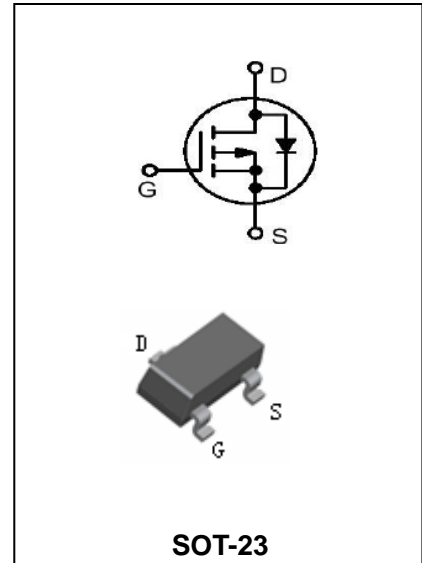
P-Channel Enhancement Mode Field Effect Transistor

BL3415

FEATURES

- Electrostatic Sensitive Devices.
- $V_{DS} (V) = -20V$
- $I_D = -4 A$
- $R_{DS(ON)} < 50m\Omega (V_{GS} = -4.5V)$
 $R_{DS(ON)} < 70m\Omega (V_{GS} = -2.5V)$
 $R_{DS(ON)} < 100m\Omega (V_{GS} = -1.8V)$

HF



APPLICATIONS

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

ORDERING INFORMATION

Type No.	Marking	Package Code
BL3415	R15	SOT-23

MAXIMUM RATING @ Ta=25°C unless otherwise specified

Symbol	Parameter	Value	Units
V_{DSS}	Drain-Source voltage	-20	V
V_{GSS}	Gate -Source voltage	± 8	V
I_D	Continuous Drain Current @ TA = 25 °C @ TA = 70 °C	-4.0 -3.5	A
I_{DM}	Pulsed Drain Current ^(Note 1)	-30	A
P_D	Power Dissipation @ TA = 25 °C @ TA = 70 °C	1.4 0.9	W
$R_{\theta JA}$	Thermal resistance, Junction-to-Ambient	90	°C/W
T_J, T_{stg}	Junction and Storage Temperature	-55 to +150	°C

Note 1: 10μs Pulse, Duty Cycle = 1%

P-Channel Enhancement Mode Field Effect Transistor

BL3415

ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
STATIC PARAMETERS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V, V_{GS}=0V$	-	-	-1	μA
Gate-body Leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 8V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.3	-0.55	-1	V
On state drain current	$I_{D(ON)}$	$V_{DS}=-5V, V_{GS}=-4.5V$	-25	-	-	A
Static drain-Source on-resistance	$R_{DS(ON)}$	$V_{GS}=-4.5V, I_D=-4A$	-	40	50	m Ω
		$V_{GS}=-2.5V, I_D=-4A$	-	55	70	
		$V_{GS}=-1.8V, I_D=-2A$	-	85	100	
Forward Transconductance	g_{FS}	$V_{DS}=-5V, I_D=-4A$	8	16	-	S
Drain-Source diode forward voltage	V_{SD}	$V_{GS}=0V, I_S=-1A$	-	-0.78	-1	V
Maximum Body-Diode Continuous Current	I_S		-	-	-2.2	A
DYNAMIC CHARACTERISTICS^C						
Input capacitance	C_{ISS}	$V_{DS}=-10V, V_{GS}=0V, f=1.0MHz$	-	1450	-	pF
Output capacitance	C_{OSS}		-	205	-	
Reverse transfer capacitance	C_{RSS}		-	160	-	
Gate resistance	R_g	$V_{DS}=0V, V_{GS}=0V, f=1.0MHz$		6.5		Ω
SWITCHING CHARACTERISTICS^C						
Turn-On Delay Time	$t_{D(ON)}$	$V_{DS} = -10V,$ $R_L = 2.5\Omega,$ $V_{GS} = -4.5V,$ $R_{GEN} = 3\Omega$	-	9.5	-	ns
Rise Time	t_r		-	17	-	ns
Turn-Off Delay Time	$t_{D(OFF)}$		-	94	-	ns
Fall Time	t_f		-	35	-	ns
Total Gate Charge	Q_g		$V_{DS} = -10V$	-	17.2	-
Gate-Source Charge	Q_{gs}	$I_D = -4A$	-	1.3	-	nC
Gate-Drain Charge	Q_{gd}	$V_{GS} = -4.5V,$	-	4.5	-	nC
Body Diode Reverse Recovery Time	t_{rr}	$I_F = -4A, dI/dt = 100A/\mu s$	-	31	-	nS
Body Diode Reverse Recovery Charge	Q_{rr}	$I_F = -4A, dI/dt = 100A/\mu s$	-	13.8	-	nC

P-Channel Enhancement Mode Field Effect Transistor

BL3415

TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

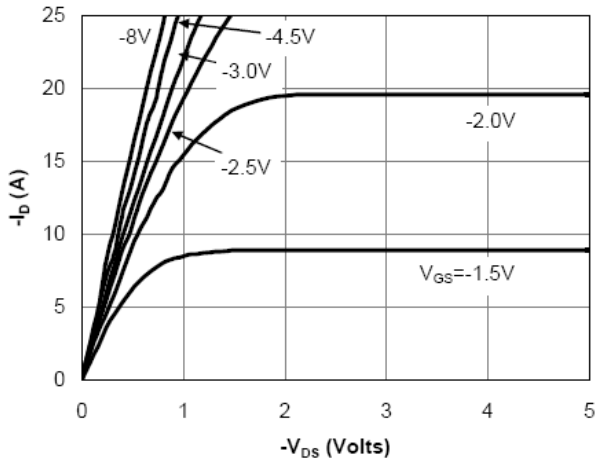


Fig 1: On-Region Characteristics

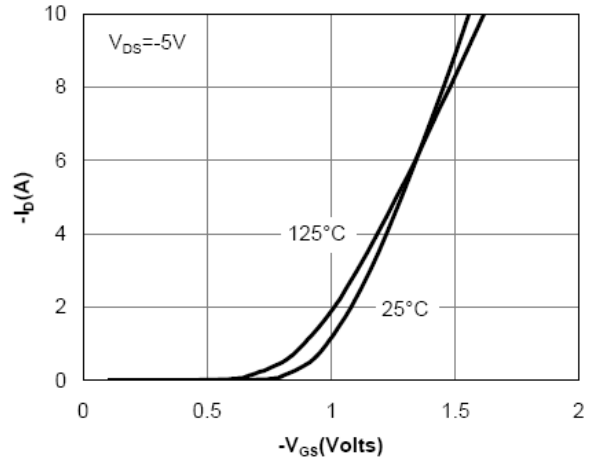


Figure 2: Transfer Characteristics

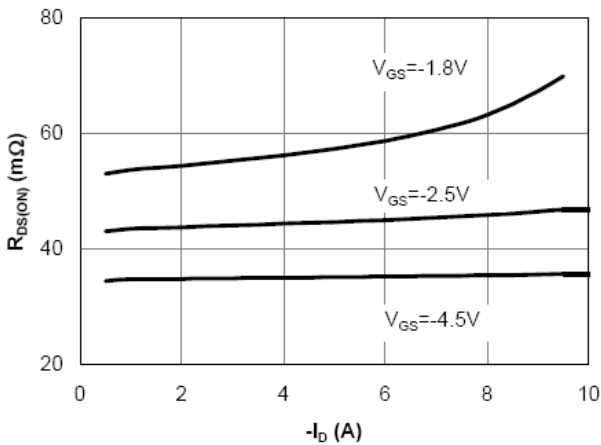


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

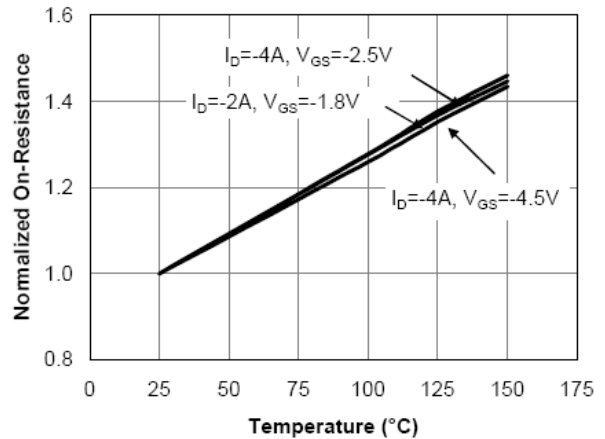


Figure 4: On-Resistance vs. Junction Temperature

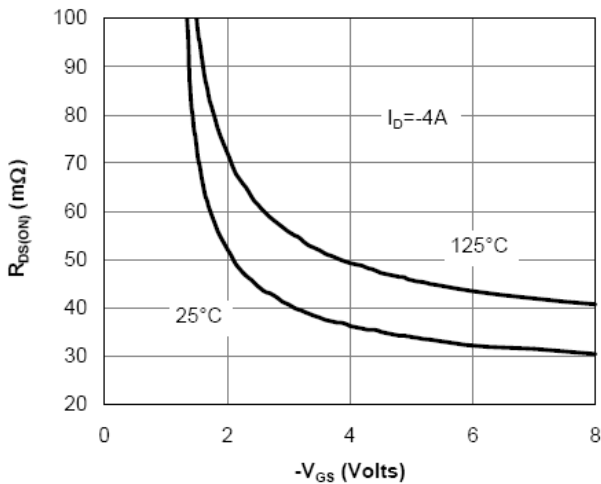


Figure 5: On-Resistance vs. Gate-Source Voltage

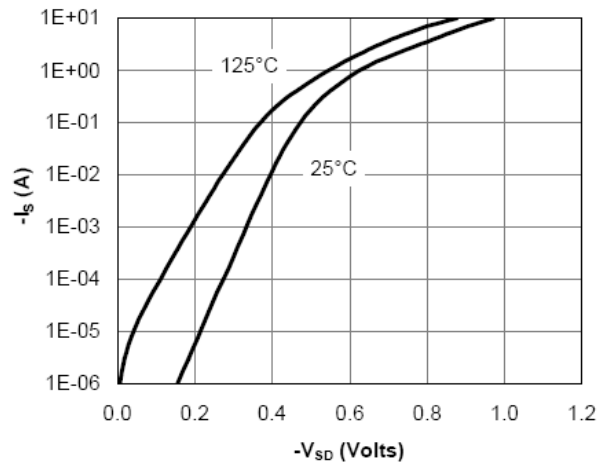


Figure 6: Body-Diode Characteristics

P-Channel Enhancement Mode Field Effect Transistor

BL3415

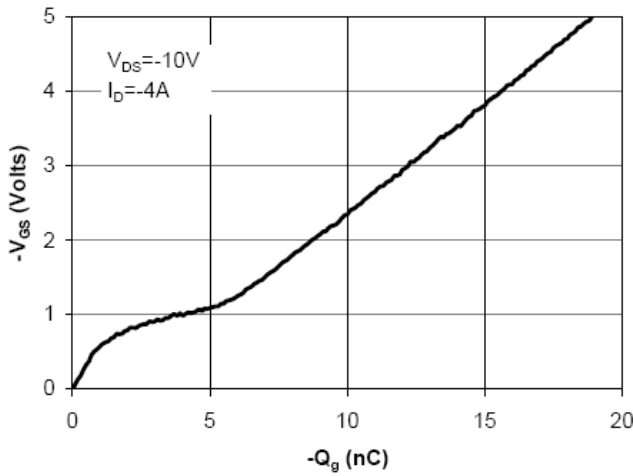


Figure 7: Gate-Charge Characteristics

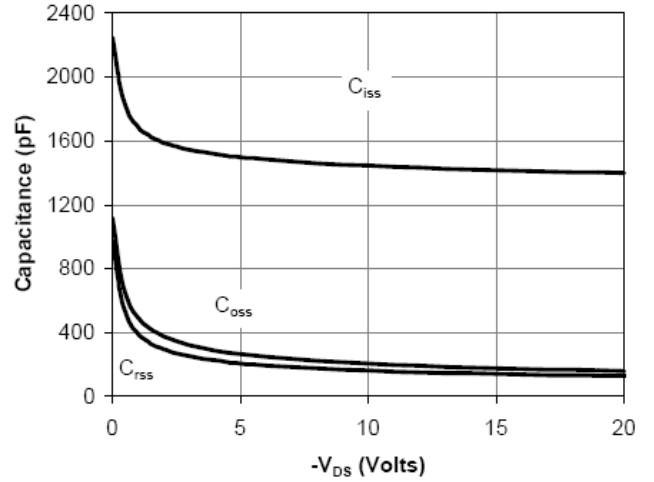


Figure 8: Capacitance Characteristics

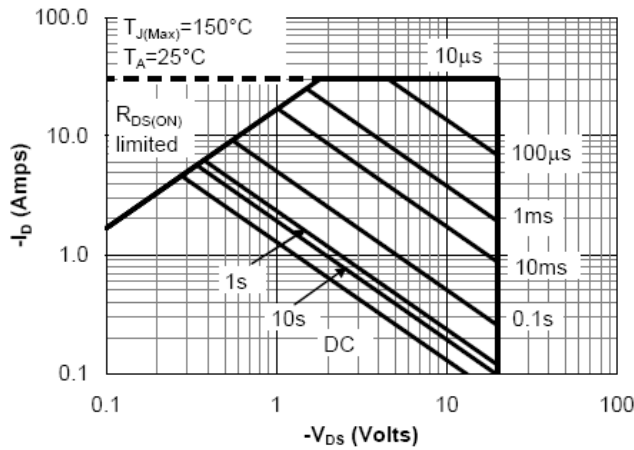


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

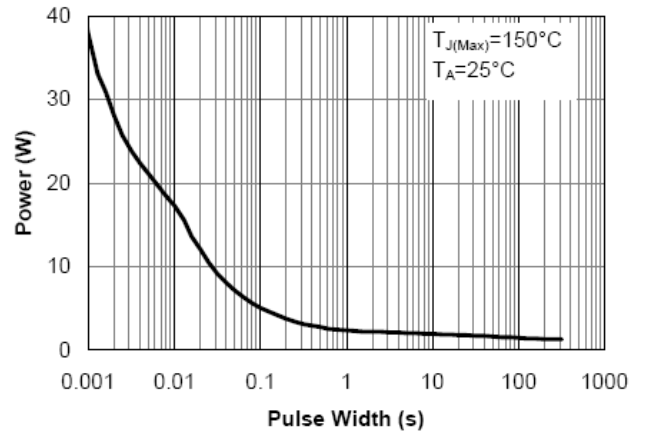


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

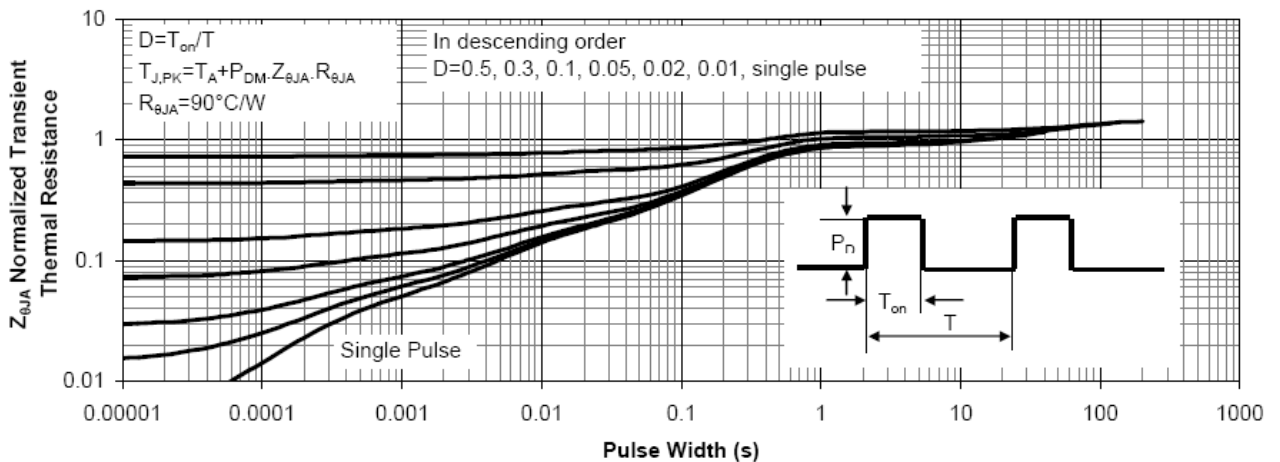


Figure 11: Normalized Maximum Transient Thermal Impedance

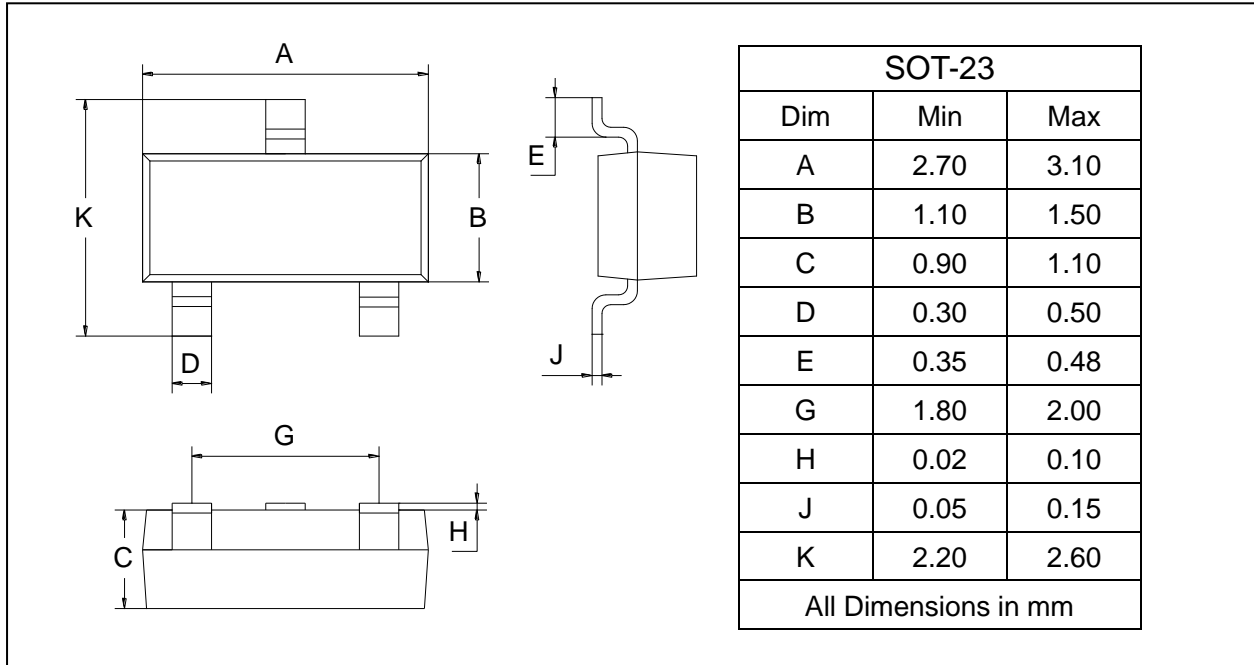
P-Channel Enhancement Mode Field Effect Transistor

BL3415

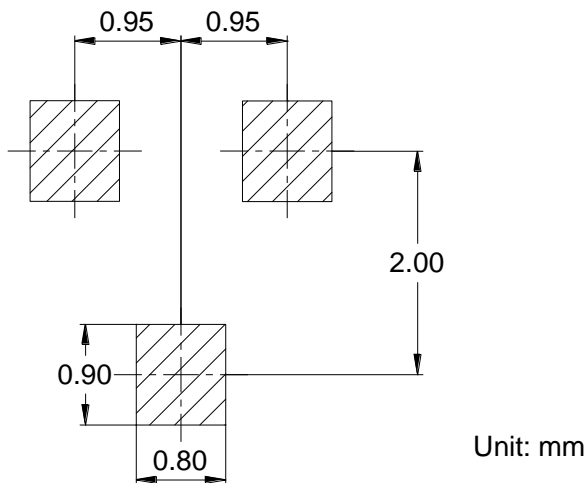
PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
BL3415	SOT-23	3000 pcs / Tape & Reel