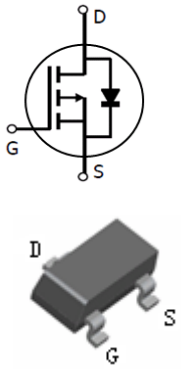
P-Channel Enhancement Mode Field Effect Transistor BL3407

FEATURES

- Electrostatic Sensitive Devices.
- V_{DS} (V) = - 30V
- I_D = - 4.1
- $R_{DS(ON)}$ < 52mΩ (V_{GS} = -10V)
  $R_{DS(ON)}$ < 87mΩ (V_{GS} = -4.5V)

Pb Lead-free



SOT-23

APPLICATIONS

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

ORDERING INFORMATION

Type No.	Marking	Package Code
BL3407	3407	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	±20	V
I_D	Continuous Drain Current[A] @ TA = 25 ℃ @ TA = 70 ℃	-4.1 -3.5	A
I_{DM}	Pulsed Drain Current [a]	-20	A
P_D	Power Dissipation @ TA = 25 ℃ @ TA = 70 ℃	1.4 1	W
$R_{\theta JA}$	Thermal resistance,Junction-to-Ambient	90	℃/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}	VDS=-24V, VGS=0V	-	-	-1	μA
Gate-body Leakage	I_{GSS}	VDS=0V, VGS=±20V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D= -250μA	-1	-1.8	-3	V
On state drain current	$I_{DON)}$	VGS= -4.5V, VDS= -5V	-10	-	-	A
Static drain-Source on-resistance	$R_{DS(ON)}$	VGS= -10V, ID= -4.1A VGS= -4.5V, ID= -3A	- -	43 64	52 87	mΩ
Forward Transconductance	gFS	VDS= -5V, ID= -4A	5.5	8.2	-	S
Drain-Source diode forward voltage	V_{SD}	IS= -1A,VGS=0V	-	-0.77	-1.0	V
Maximum Body-Diode Continuous Current	I_S		-	-	-2.2	A
DYNAMIC CHARACTERISTICS[C]						
Input capacitance	C_{ISS}	VGS=0V, VDS= -15V, f=1MHz	-	700		pF
Output capacitance	C_{OSS}		-	120	-	
Reverse transfer capacitance	C_{RSS}		-	75	-	
Gate resistance	Rg	VGS=0V, VDS=0V, f=1MHz	-	10	-	Ω
SWITCHING CHARACTERISTICS[C]						
Turn-On Delay Time	$t_{D(ON)}$	VGS= -10V, VDS= -15V, RL=3.6Ω, RGEN=3Ω	-	8.6	-	ns
Rise Time	tr		-	5	-	ns
Turn-Off Delay Time	$t_{D(OFF)}$		-	28.2	-	ns
Fall Time	tf		-	13.5	-	ns
Total Gate Charge	Qg（10V）	VGS= -4.5V, VDS= -15V, ID= -4A	-	14.3		nC
Total Gate Charge	Qg(4.5V)			7		
Gate-Source Charge	Qgs		-	3.1	-	nC
Gate-Drain Charge	Qgd		-	3	-	nC
Body Diode Reverse Recovery Time	trr	IF= - 4A, dI/dt=100A/μs	-	27		nS
Body Diode Reverse Recovery Charge	Qrr	IF= -4A, dI/dt=100A/μs	-	15	-	nC

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TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

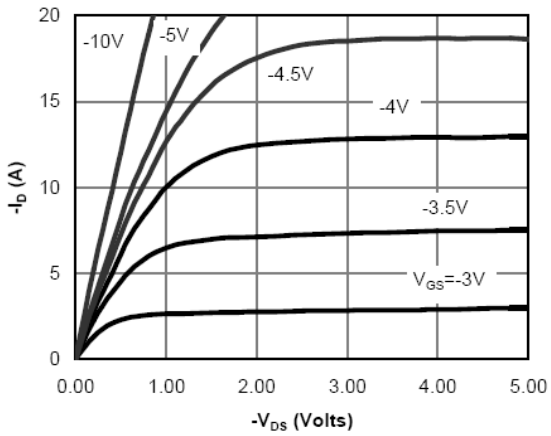

Figure 1: On-Region Characteristics

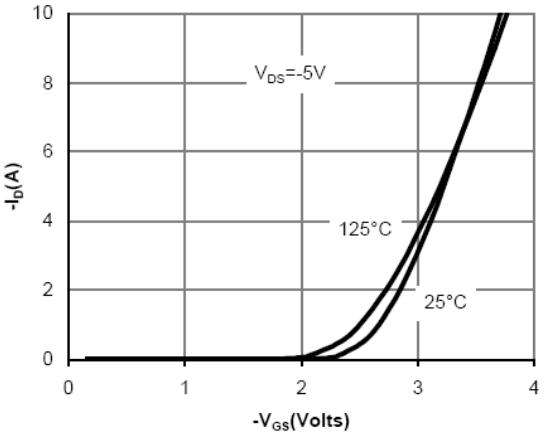

Figure 2: Transfer Characteristics

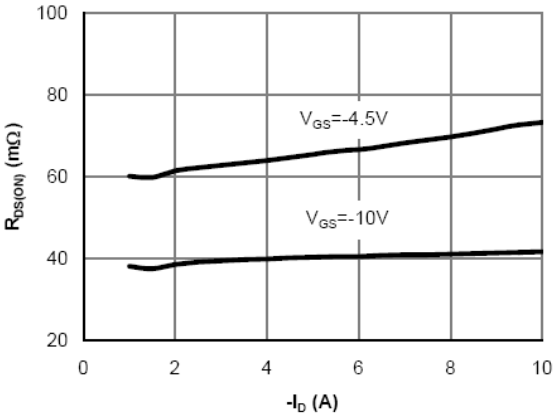

Figure 3: On-Resistance vs. Drain Current and Gate Voltage

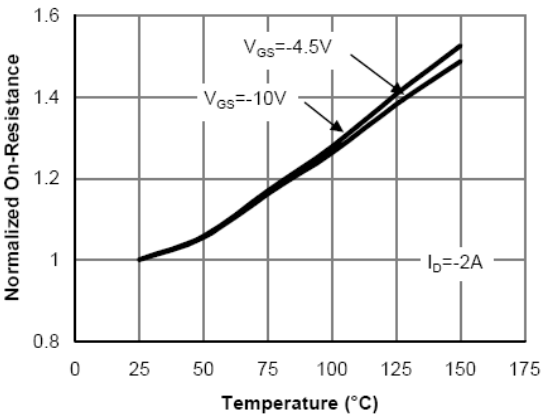

Figure 4: On-Resistance vs. Junction Temperature

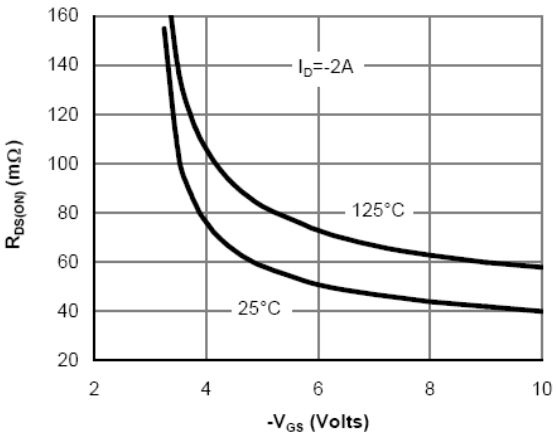

Figure 5: On-Resistance vs. Gate-Source Voltage

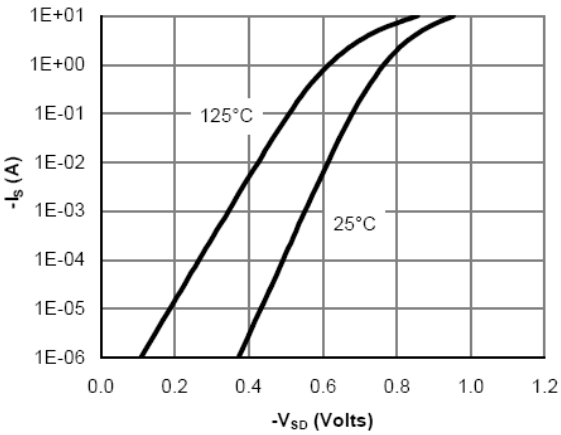

Figure 6: Body-Diode Characteristics

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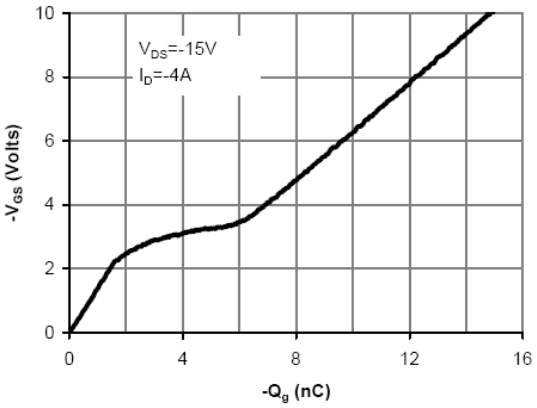

Figure 7: Gate-Charge Characteristics

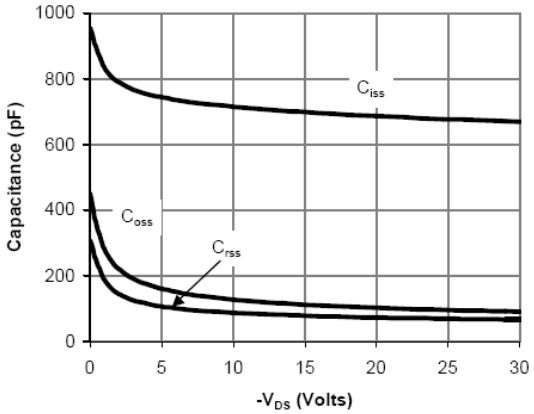

Figure 8: Capacitance Characteristics

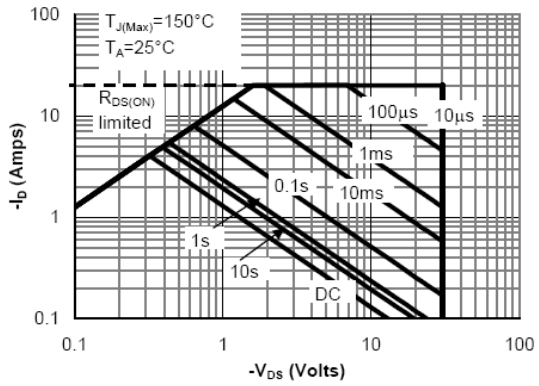

Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

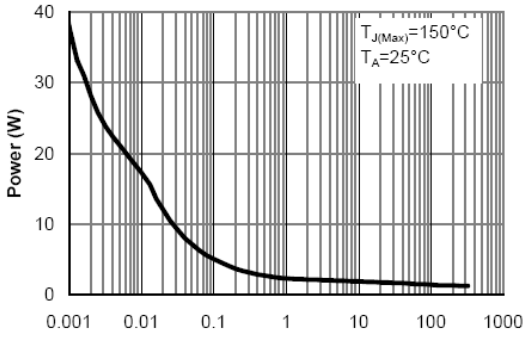

Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

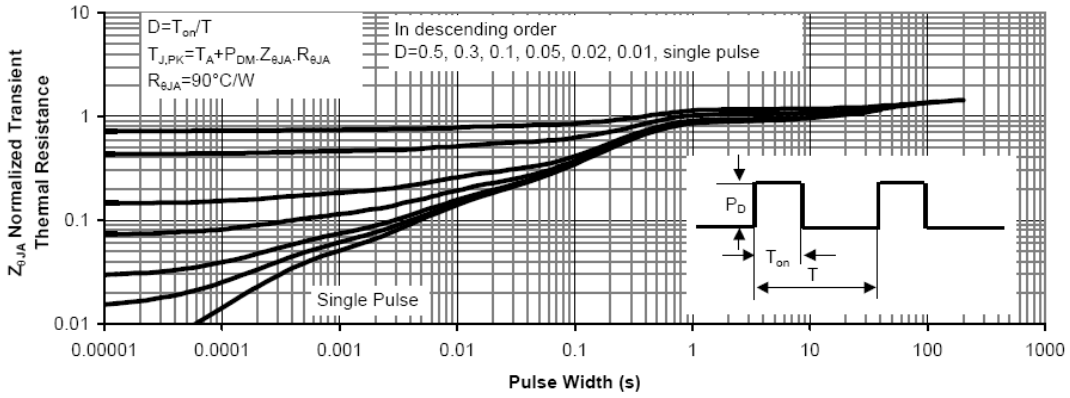

Figure 11: Normalized Maximum Transient Thermal Impedance

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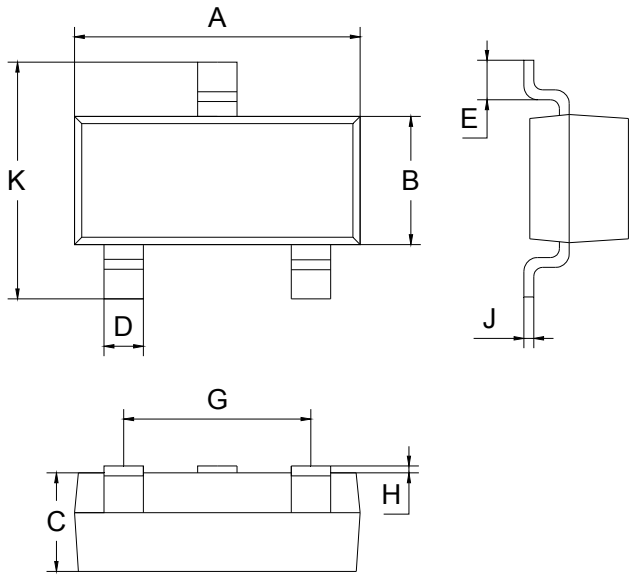
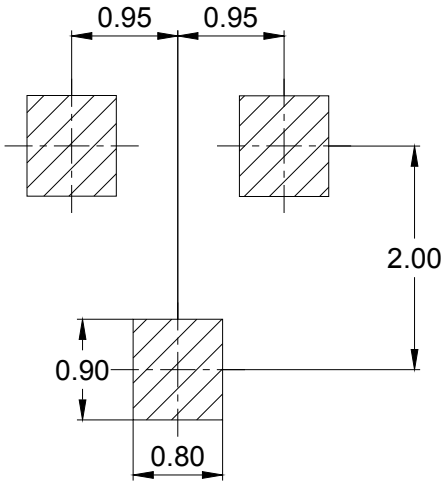
PACKAGE OUTLINE

Plastic surface mounted package SOT-23



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
BL3407	SOT-23	3000/Tape&Reel