



Description

The BSL215CH6327 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

General Features

$V_{DS} = 20V$ $I_D = 5A$

$R_{DS(ON)} < 27m\Omega$ @ $V_{GS}=4.5V$

$V_{DS} = -20V$ $I_D = -3.6A$

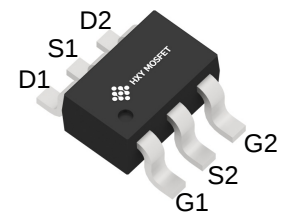
$R_{DS(ON)} < 70 m\Omega$ @ $V_{GS}=-4.5V$

Application

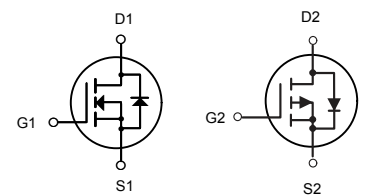
Wireless charging

Boost driver

Brushless motor



SOT-23-6L
(TSOP-6-1.5mm)



N-Channel MOSFET

P-Channel MOSFET

Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
BSL215CH6327	SOT-23-6L(TSOP-6-1.5mm)	HXY MOSFET	3000

Absolute Maximum Ratings ($T_c=25^{\circ}C$ unless otherwise noted)

Symbol	Parameter	Rating		Units
		N-Channel	P-Channel	
VDS	Drain-Source Voltage	20	-20	V
VGS	Gate-Source Voltage	± 12	± 12	V
$I_{D@T_A=25^{\circ}C}$	Continuous Drain Current, V_{GS} @ 10V ¹	5	-3.6	A
$I_{D@T_A=70^{\circ}C}$	Continuous Drain Current, V_{GS} @ 10V ¹	4	-2.5	A
IDM	Pulsed Drain Current ²	20	-12	A
EAS	Single Pulse Avalanche Energy ³	72	59	mJ
IAS	Avalanche Current	21	-19	A
$P_{D@T_A=25^{\circ}C}$	Total Power Dissipation ⁴	2.5	2.08	W
TSTG	Storage Temperature Range	-55 to 150	-55 to 150	$^{\circ}C$
TJ	Operating Junction Temperature Range	-55 to 150	-55 to 150	$^{\circ}C$
R θ JA	Thermal Resistance Junction-Ambient ¹	85		$^{\circ}C/W$
R θ JC	Thermal Resistance Junction-Case ¹	50		$^{\circ}C/W$



N-Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	20	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =20V, V _{GS} =0V,	-	-	1.0	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} =±12V	-	-	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	0.4	0.7	1	V
R _{DS(on)}	Static Drain-Source on-Resistance note2	V _{GS} =4.5V, I _D =4A	-	22	27	mΩ
		V _{GS} =2.5V, I _D =3A	-	29	44	
C _{iss}	Input Capacitance	V _{DS} =10V, V _{GS} =0V, f=1.0MHz	-	358	-	pF
C _{oss}	Output Capacitance		-	69.3	-	pF
C _{rss}	Reverse Transfer Capacitance		-	58.5	-	pF
Q _g	Total Gate Charge	V _{DS} =10V, I _D =2A, V _{GS} =4.5V	-	5.6	-	nC
Q _{gs}	Gate-Source Charge		-	0.8	-	nC
Q _{gd}	Gate-Drain(“Miller”) Charge		-	1	-	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =10V, I _D =4A, R _{GEN} =3Ω, V _{GS} =4.5V	-	5	-	ns
t _r	Turn-on Rise Time		-	30	-	ns
t _{d(off)}	Turn-off Delay Time		-	48	-	ns
t _f	Turn-off Fall Time		-	36	-	ns
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	5	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	16	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} =0V, I _S =4A	-	-	1.2	V

Notes: 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$



P-Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-20	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-20V, V_{GS}=0V,$	-	-	-1	μA
I_{GSS}	Gate to Body Leakage Current	$V_{DS}=0V, V_{GS}=\pm 12V$	-	-	± 100	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.5	-0.7	-1.0	V
$R_{DS(on)}$	Static Drain-Source on-Resistance note2	$V_{GS}=-4.5V, I_D=-3A$	-	55	70	m Ω
		$V_{GS}=-2.5V, I_D=-2A$	-	70	100	
C_{iss}	Input Capacitance	$V_{DS}=-10V, V_{GS}=0V,$ $f=1.0MHz$	-	503	-	pF
C_{oss}	Output Capacitance		-	67	-	pF
C_{rss}	Reverse Transfer Capacitance		-	58	-	pF
Q_g	Total Gate Charge	$V_{DS}=-10V, I_D=-2A,$ $V_{GS}=-4.5V$	-	4.1	-	nC
Q_{gs}	Gate-Source Charge		-	0.8	-	nC
Q_{gd}	Gate-Drain("Miller") Charge		-	1.1	-	nC
$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=-10V, I_D=-3A,$ $R_G=1\Omega, V_{GEN}=-4.5V,$ $R_L=1.2\Omega$	-	11	-	ns
t_r	Turn-on Rise Time		-	52	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	16	-	ns
t_f	Turn-off Fall Time		-	10	-	ns
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-3	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-12	A
V_{SD}	Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=-3A$	-	-	-1.2	V

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$



Typical Performance Characteristics

N-Channel Typical Characteristics

Figure 1: Output Characteristics

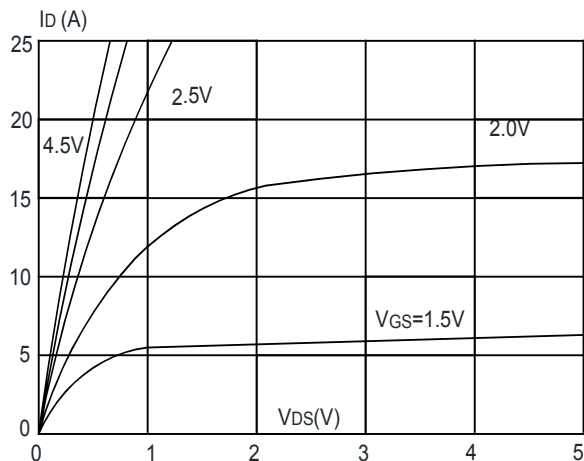


Figure 2: Typical Transfer Characteristics

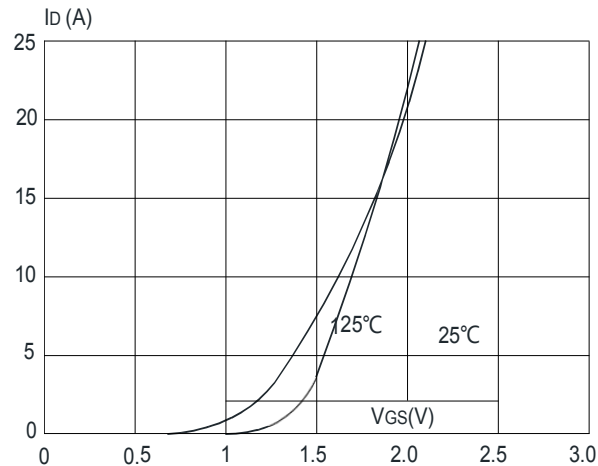


Figure 3: On-resistance vs. Drain Current

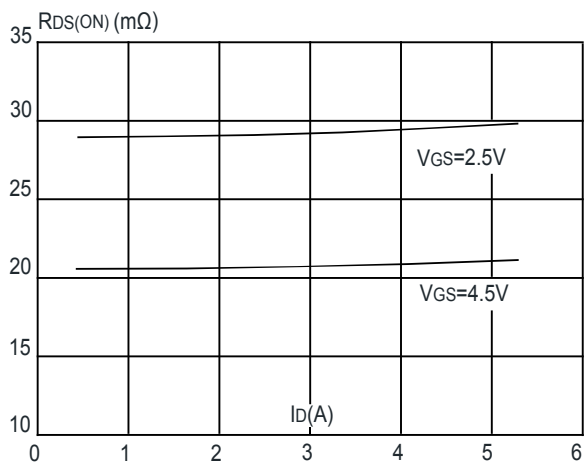


Figure 4: Body Diode Characteristics

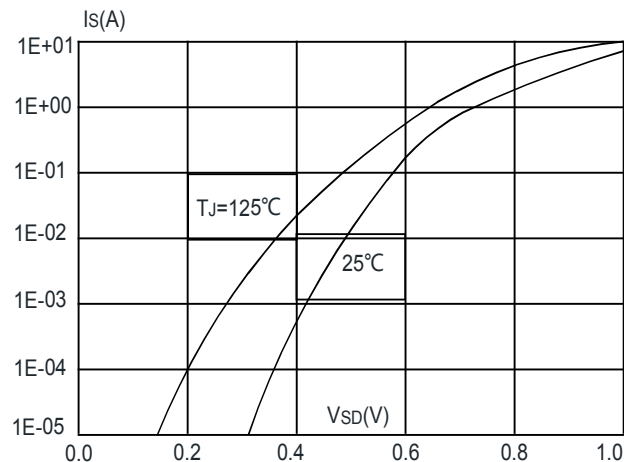


Figure 5: Gate Charge Characteristics

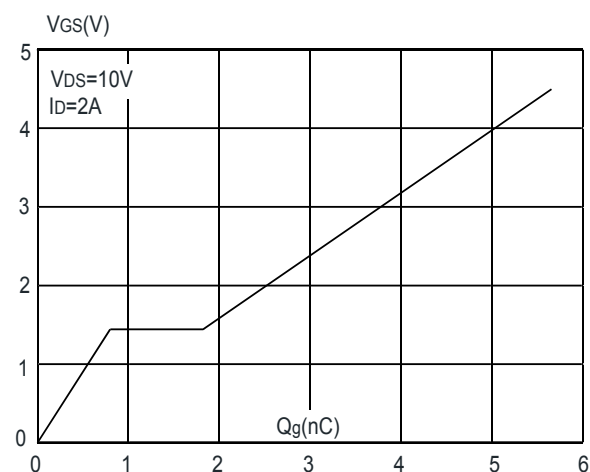
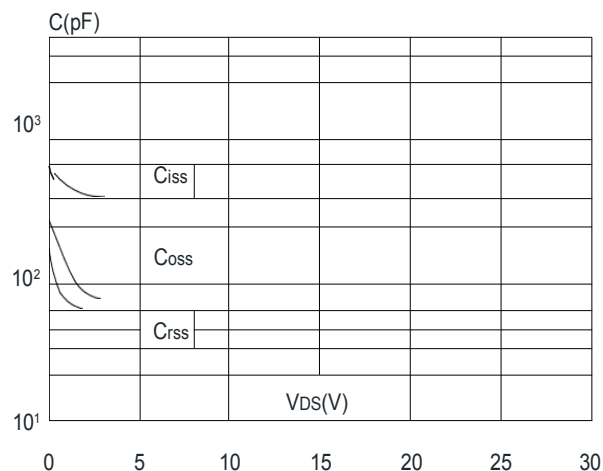


Figure 6: Capacitance Characteristics





P-Channel Typical Characteristics

Figure1: Output Characteristics

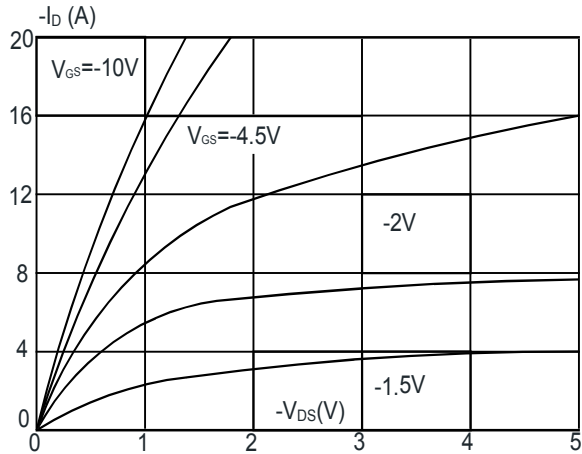


Figure 2: Typical Transfer Characteristics

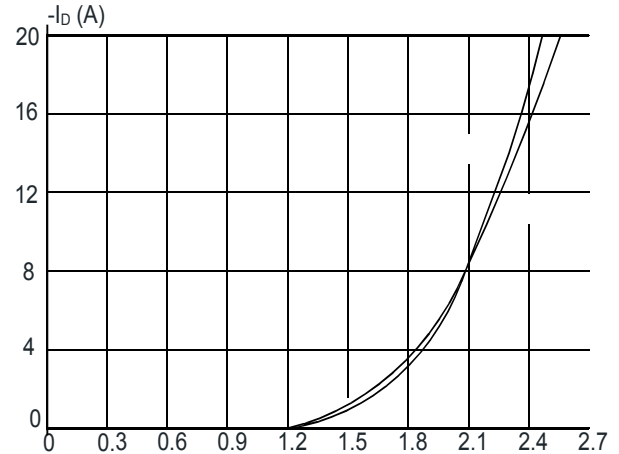


Figure 3: On-resistance vs. Drain Current
 $R_{DS(ON)}$ (m Ω)

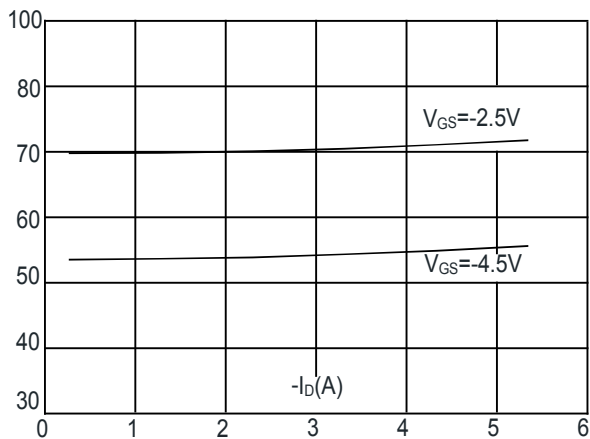


Figure 4: Body Diode Characteristics
 $-I_S$ (A)

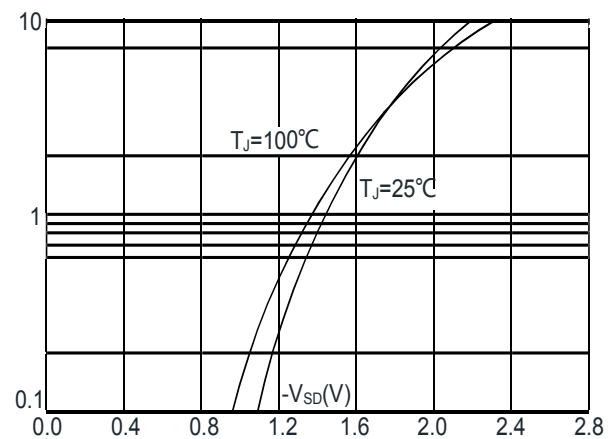


Figure 5: Gate Charge Characteristics

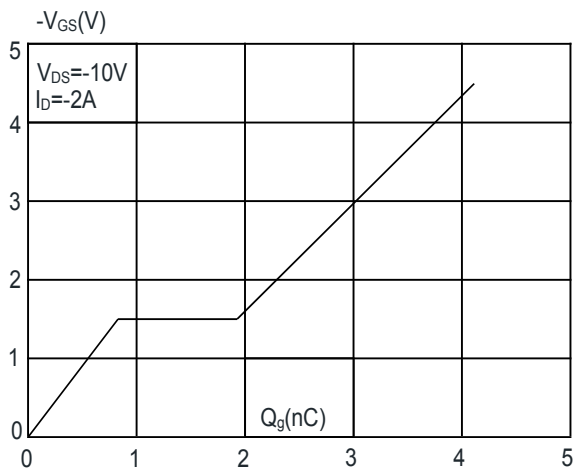
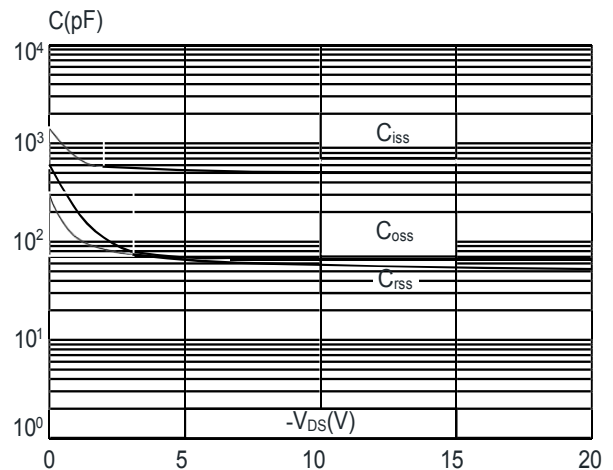
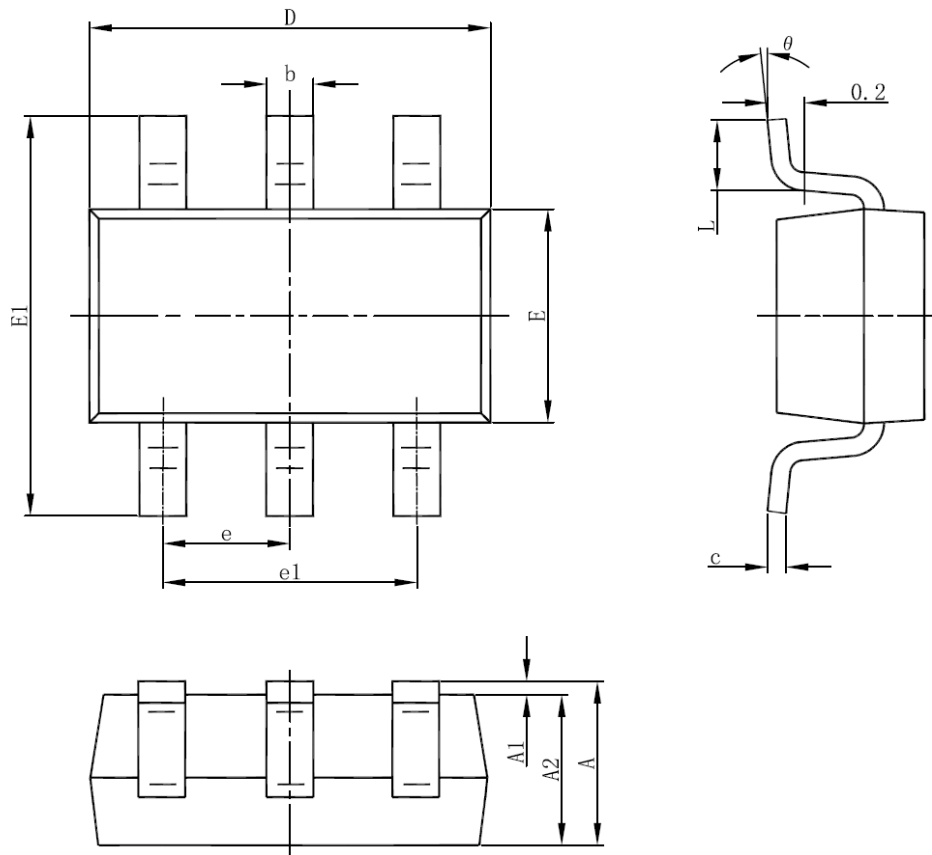


Figure 6: Capacitance Characteristics





SOT-23-6L(TSOP-6-1.5mm) Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°



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