上海贝岭
SHANGHAI BELLING

BL8003L

INTEGRATED HALF –BRIDGE DRIVER

Description

The BL8003L is an integrated high-speed half bridge power MOSFET driver. Our proprietary DBiCMOS technologies provide stable operation under high dv/dt noise circumstances. The output drivers feature a high pulse current buffer stage designed for minimum driver cross-conduction. The floating channel can be used to drive an N-channel power MOSFET on the high side. The logic input is compatible with standard CMOS or LSTTL, down to 3.3V logic. Cross conduction prevention logic and dead-times are built in to simplify the applications.

Features

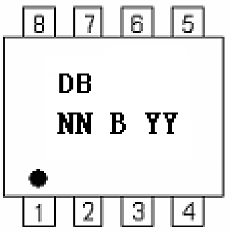
- DBiCMOS technologies， low power dissipation and high output current
- Internal 5V LDO， CMOS and LSTTL logic (5V and 3.3V) compatible
- Cross conduction prevention logic
- Gate drive supply range from 10V to 15V
- Internal set deadtime
- High side output of phase with HIN input
- Low side output of phase with $\overline{\text{LIN}}$ input.

Ordering Information

BL8003L 1 2 3

Code	Description
1	Temperature&Rohs: C: -40~85°C ,Pb Free Rohs Std.
2	Package type: D8: SOIC-8
3	Packing type: TR: Tape&Reel (Standard)

Marking Information

<table>
<tr><td colspan="2">Product Classification</td><td>BL8003LCD8TR</td></tr>
<tr><td colspan="2">Marking</td><td rowspan="5"> </td></tr>
<tr><td rowspan="4">DM
NN B YY</td><td>DB: Product Code</td></tr>
<tr><td>NN: LOT NO.</td></tr>
<tr><td>B: FAB Code</td></tr>
<tr><td>YY: Date Code</td></tr>
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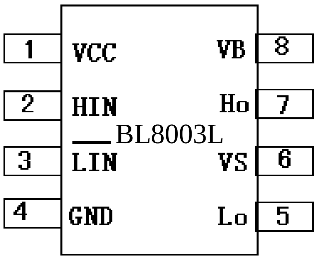
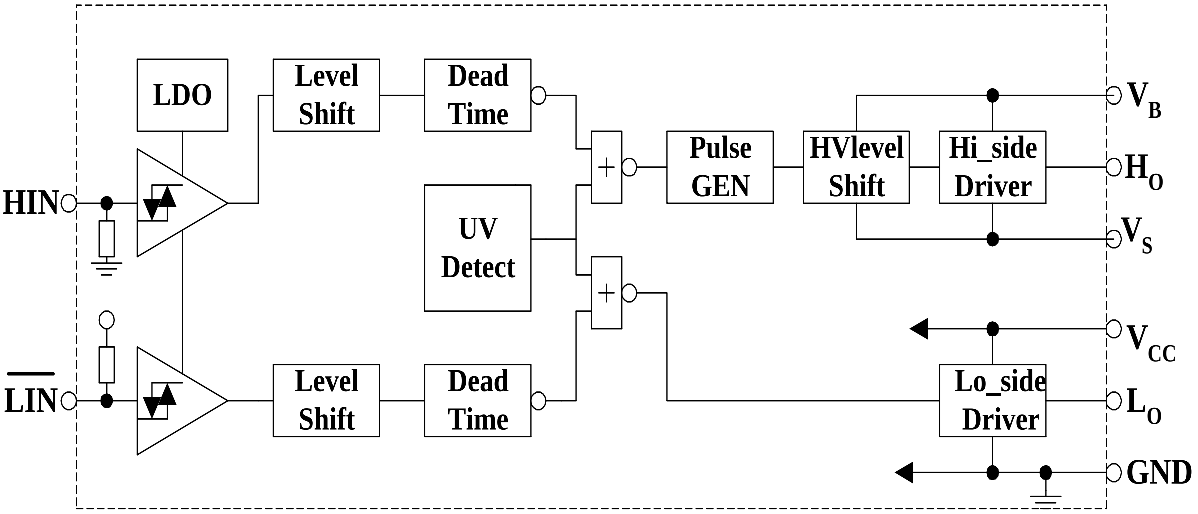
Lead Assignments



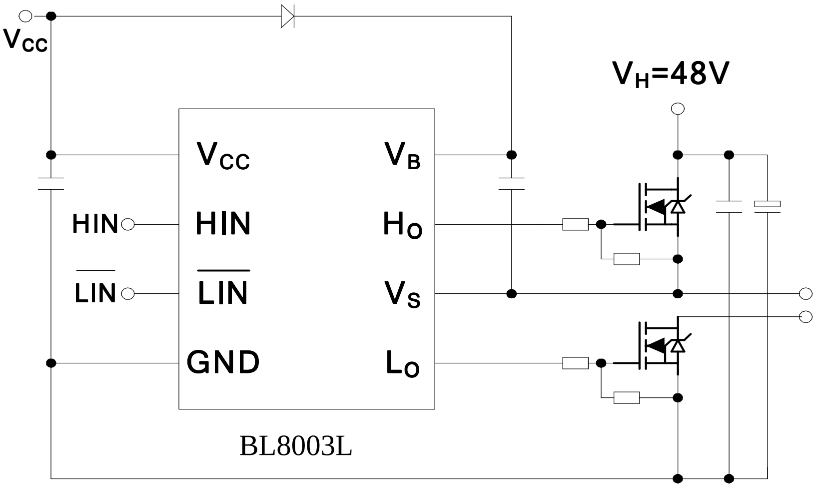
Pin Descriptions

Symbol	Description
HIN	Logic input for high side gate driver output (H_O), in phase
$\overline{\text{LIN}}$	Logic input for low side gate driver output (L_O), out of phase
V_B	High side floating supply
H_O	High side gate drive output
V_S	High side floating supply return
V_{CC}	Low side and logic fixed supply
L_O	Low side gate drive output
GND	Low side return

Functional Block Diagram



Typical Connection



Absolute Maximum Ratings

Symbol	Definition	Min.	Max.	Unit
Vcc	Low side and logic fixed supply voltage	－0.3	16	V
V_B	High side floating absolute voltage	－0.3	100	V
Vs	High side floating supply offset voltage	V_B－16	V_B＋0.3	V
P_D	Package power dissipation @ T_A≤+25°C		0.625	W
Rth_{JA}	Thermal resistance, junction to ambient		200	°C/W

Recommended Operating Conditions

Symbol	Min.	Typ.	Max.	Units
V_B	V_S＋10	V_S＋12	V_S＋15	V
V_S	Note1		80	V
V_{HO}	V_S		V_B	V
Vcc	10	12	15	V
VH	Vcc	48	80	V
T_A	-40		125	°C

Note 1: Logic operational for V_S of -5 to 80V.

Electrical Characteristics

V_{BIAS} (V_{CC}, V_{BS})=12V, unless specified otherwise.

Symbol	Definition	Min	Typ	Max	Unit	Test Conditions
V_{IH}	Logic"1"(HIN)&"0" (LIN) input voltage	3			V	Vcc=10 to 15V
V_{IL}	Logic"0"(HIN)&"1" (LIN) input voltage			0.8	V	Vcc=10 to 15V
V_{OH}	High level output voltage, V_{BIAS}-V_O			100	mV	I_O=0A
V_{OL}	Low level output Voltage, V_O			100	mV	I_O=0A
I_{QCC}	Quiescent V_{CC} supply current	50	100	150	uA	Vcc=15V
Vcc_uv+	Vcc supply undervoltage positive going threshold		9.1		V	
Vcc_uv-	Vcc supply undervoltage negtive going threshold		8.3		V	
I_{QBS}	Quiescent V_{BS} supply current	0	25	55	uA	
I_{LK}	Vs to GND leakage current	0	10	50	nA	Vs=48V
I_{O+}	Peak source output current	130	210		mA	C_L=10nF
I_{O-}	Peak sink output current	300	430		mA	
DT	Deadtime	500	600	700	nS	

Input/output True table

Hin	**$\overline{\text{Lin}}$**	**Ho**	**Lo**
0	0	0	1
0	1	0	0
1	0	0	0
1	1	1	0

Input/output Timing Diagram

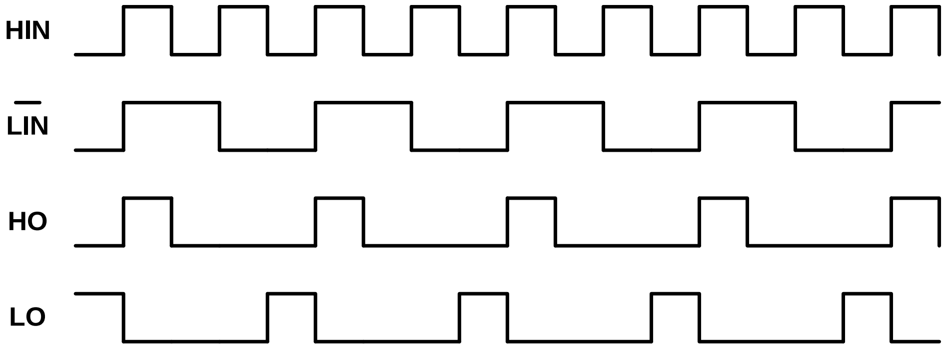


Figure 1: **Input/output Timing Diagram**

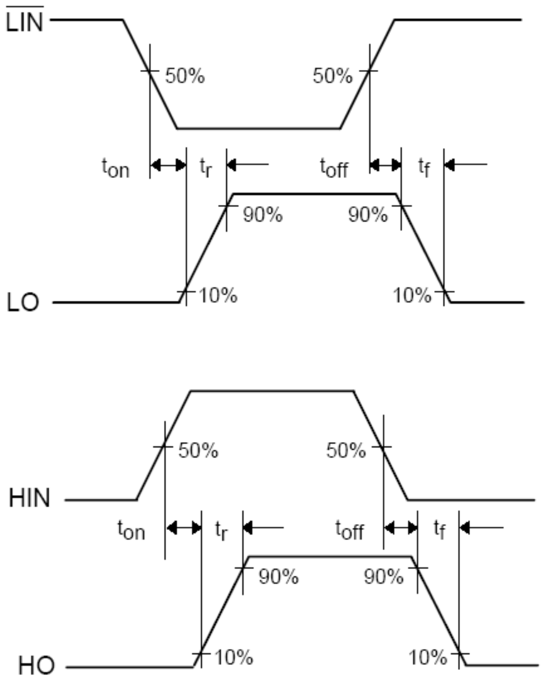


Figure 2: Switch Time Definition

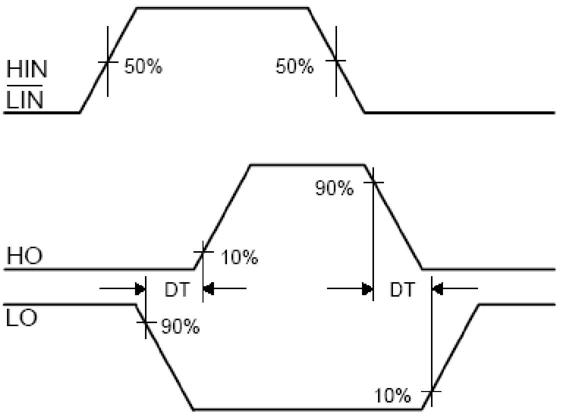
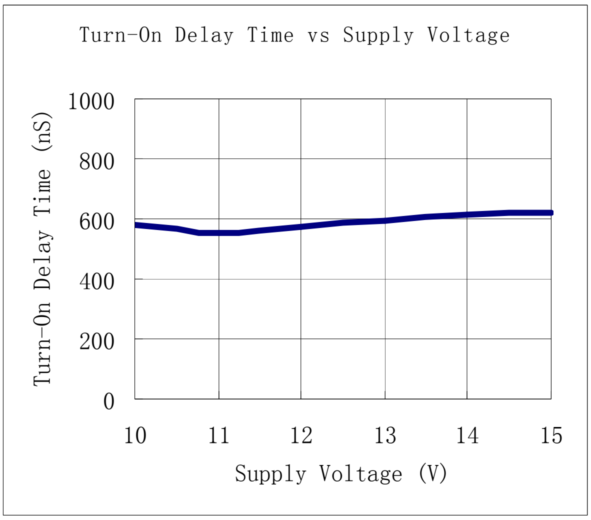
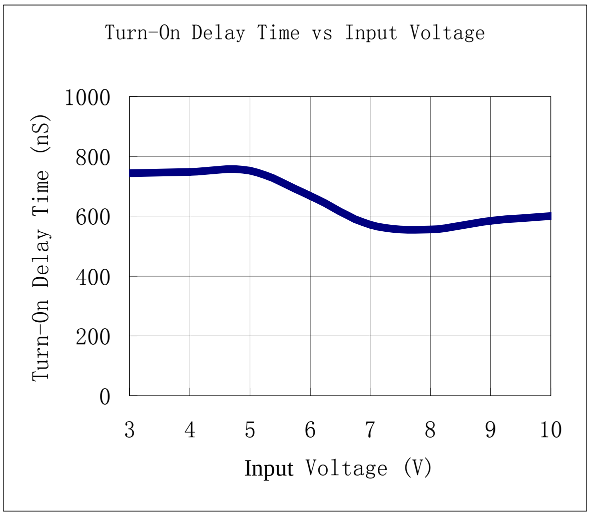
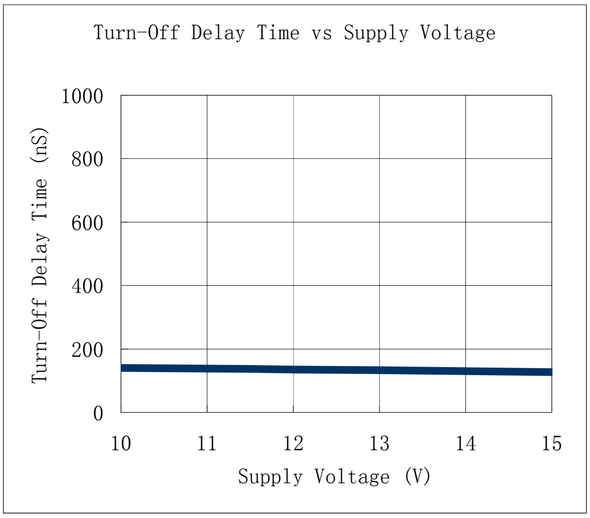


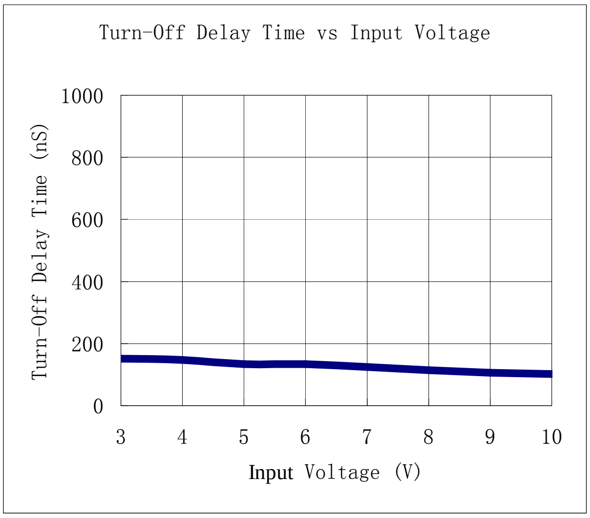
Figure 3: Dead Time Definition

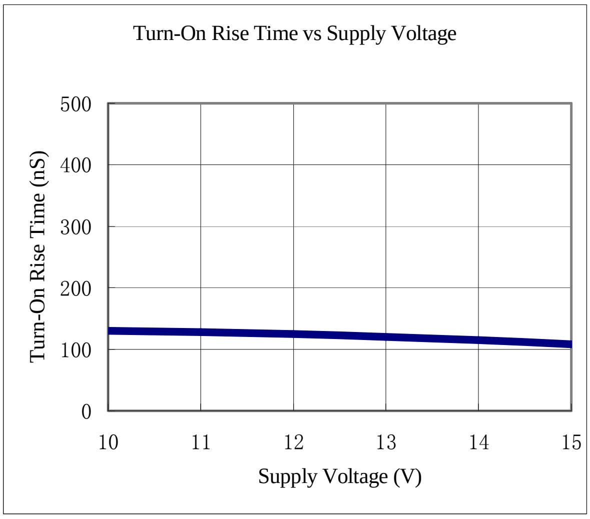
Typical Characteristics

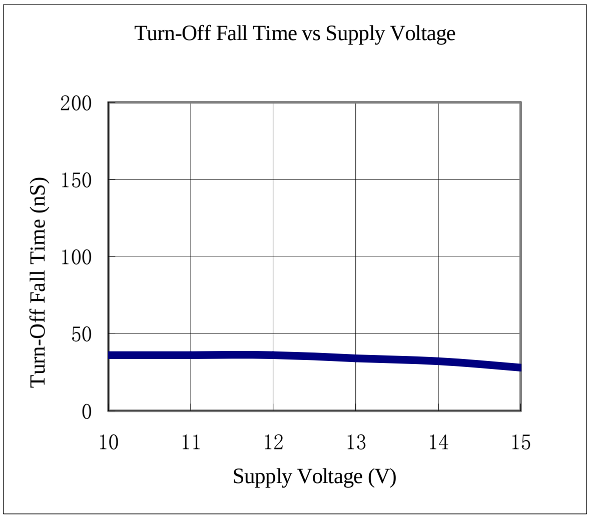

Turn-On Delay Time vs Supply Voltage


Turn-On Delay Time vs Input Voltage

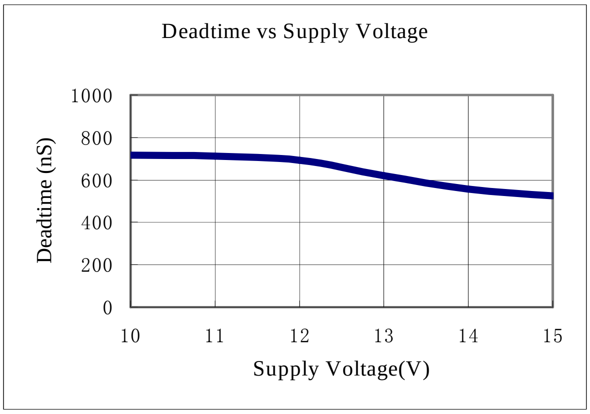

Turn-Off Delay Time vs Supply Voltage

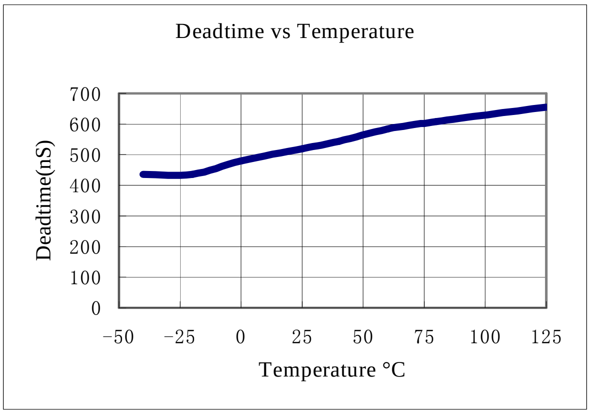

Turn-Off Delay Time vs Input Voltage

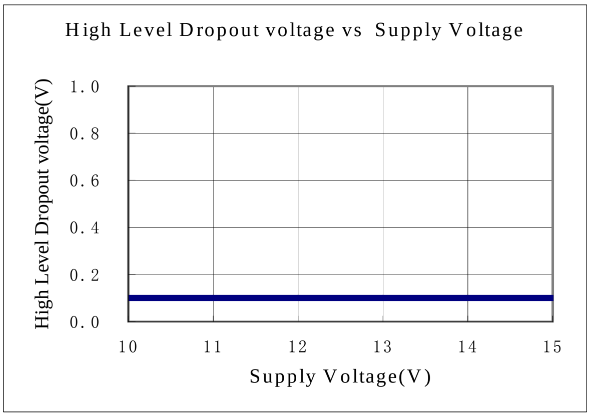

Turn-On Rise Time vs Supply Voltage

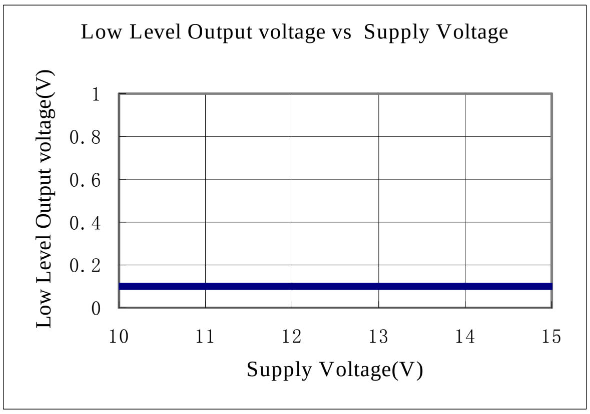

Turn-Off Fall Time vs Supply Voltage

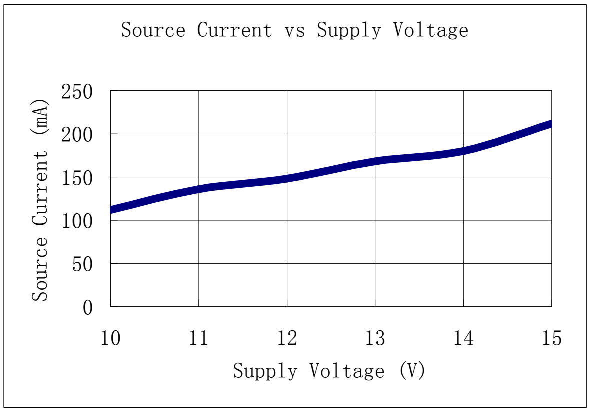
Typical Characteristics (Continued)

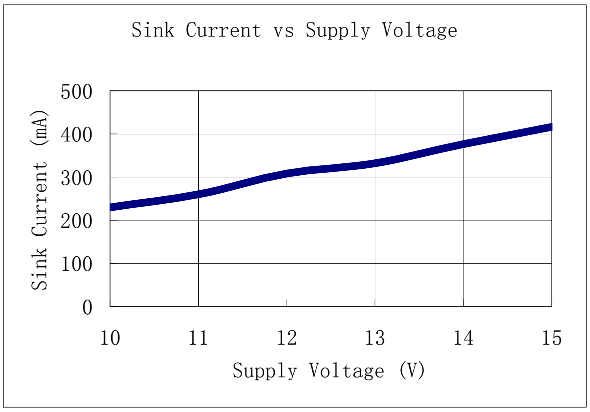

Deadtime vs Supply Voltage

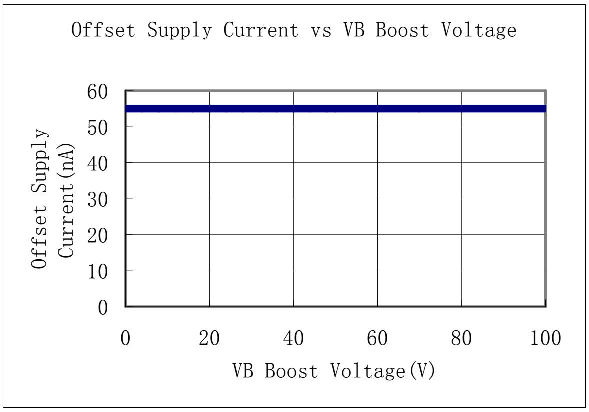

Deadtime vs Temperature

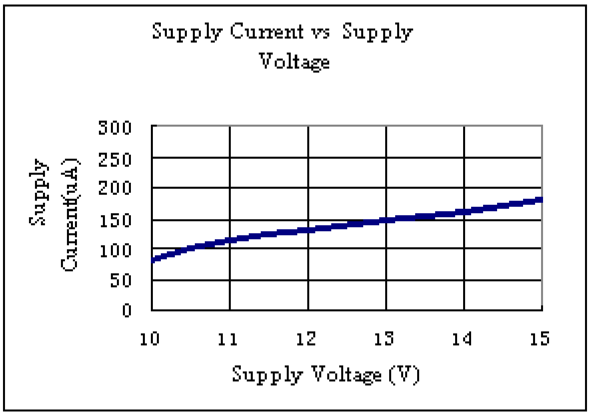

High Level Dropout voltage vs Supply Voltage


Low Level Output voltage vs Supply Voltage


Source Current vs Supply Voltage


Sink Current vs Supply Voltage

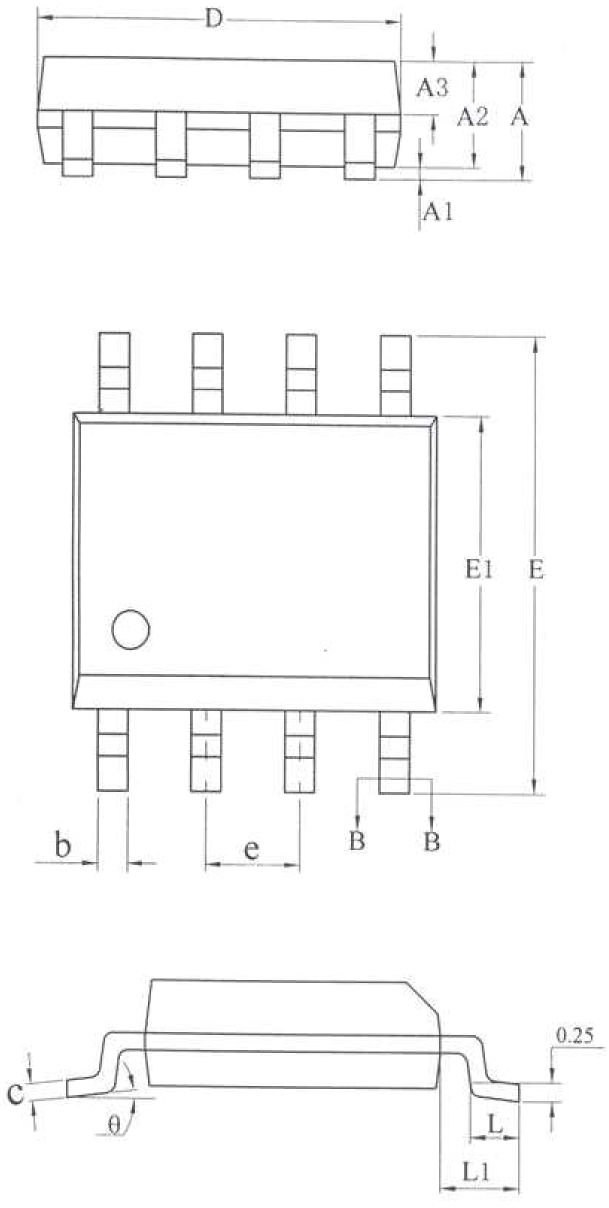

Offset Supply Current vs VB Boost Voltage


Supply Current vs Supply Voltage

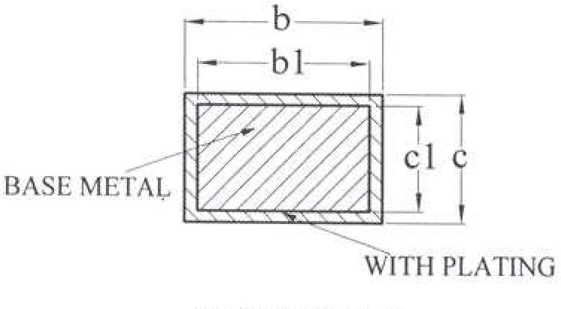
Packaging Information

Package	SOIC-8	Devices per reel	2500Pcs	Unit	mm

Package specification：



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	—	—	1.77
A1	0.08	0.18	0.28
A2	1.20	1.40	1.60
A3	0.55	0.65	0.75
b	0.39	—	0.48
b1	0.38	0.41	0.43
c	0.21	—	0.26
c1	0.19	0.20	0.21
D	4.70	4.90	5.10
E	5.80	6.00	6.20
E1	3.70	3.90	4.10
e	1.27BSC		
L	0.50	0.65	0.80
L1	1.05BSC		
θ	0	—	8°



SECTION B-B