

# LED SINGLE STAGE LINEAR CHIP

## DESCRIPTION

PM2011 is a high accuracy constant current Linear LED driver chip based on close loop control technology (**CLC**). It makes LED driver system very simply; just need very few other components, to achieve very low BOM cost of LED driver.

PM2011 integrates programmable constant current source, and it also can be used in parallel to achieve more output power.

PM2011 use the 500V high voltage semiconductor manufacturing process to ensure the reliability when input transient high voltage appear. And it also integrated over thermal compensation (OTC), output shorted circuit protection, output open circuit protection to make sure LED driver more reliable.

## FEATURE

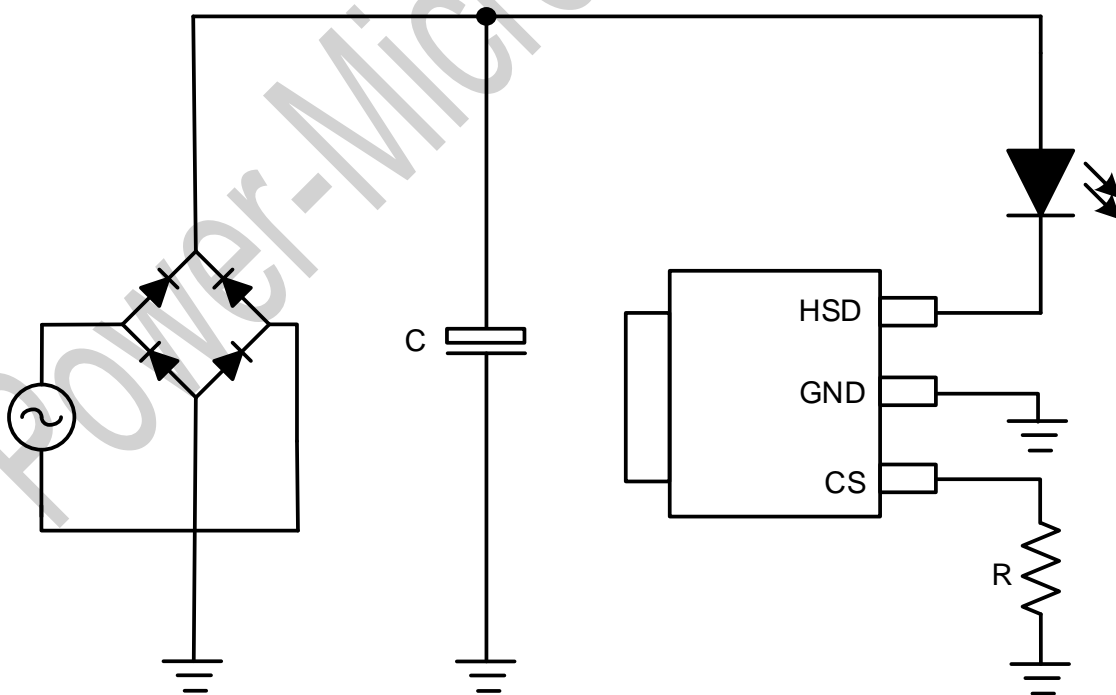
- CLC Technology Inside
- No Flickering Or High Power Factor
- Support all SMD Process
- Three Level OTC
- Output Open Circuit Protection

## APPLICATIONS

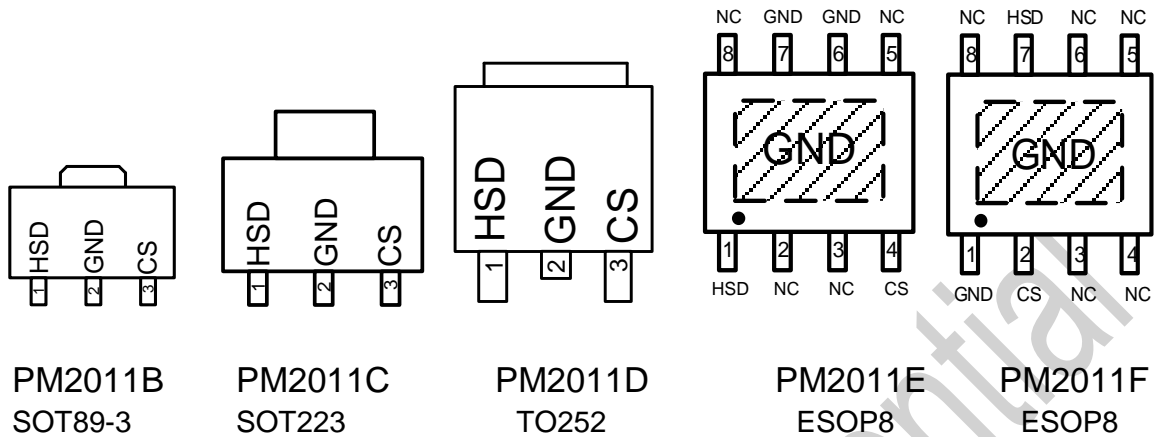
- LED Bulb Lighting
- LED Tube Lighting
- LED Down Lighting
- Other Constant Current applications

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## TYPICAL APPLICATION



## PIN ASSIGNMENTS



## PIN DESCRIPTION

PM2011X	PM2011E	PM2011F	NAME	DESCRIPTION
1	1	7	HSD	Drain Of HV-MOSFET
2	6,7,EPAD	1	GND	Ground
3	4	2	CS	Current Sense

## ORDERING INFORMATION

PART NUMBER	APPLICAION TEMPERATURE RANGE	PACKAGE	CASING
PM2011B	-40°C~105°C	SOT89-3	4000 Pcs/Tape Reel
PM2011C	-40°C~105°C	SOT223	2500 Pcs/Tape Reel
PM2011D	-40°C~105°C	TO252	2500 Pcs/Tape Reel
PM2011E/F	-40°C~105°C	ESOP8	4000 Pcs/Tape Reel

**ABSOLUTE MAXIMUM RATINGS** <sup>(1)(2)</sup>

Symbol	PIN	Description	Range	Unit
--	1/7	HSD to GND	-0.3~500	V
--	3/4/2	CS to GND	-0.3~8	V
I <sub>MAX</sub>	---	Maximum Output Current	60	mA
θ <sub>JA</sub>	---	SOT89-3	65	°C/W
	---	SOT223	50	°C/W
	---	TO252-3	45	°C/W
	---	ESOP8	75	°C/W
T <sub>j</sub>	---	Max operating temperature range	-40~160	°C
ESD_ HBM	--	Human body mode ESD	±2000	V
ESD_ MM	--	Machine model ESD	±200	V

Notes:

(1) The “Absolute Maximum Ratings” are those values beyond which the safely to the device cannot be guaranteed and may cause permanent damage to the IC. These are stress ratings only and functional operation of the device at these or any other condition beyond those indicated in the Electrical Characteristics section of the specification is not implied. The “Electrical Characteristics” table defines the conditions for actual device operation. Exposure to absolute maximum rated conditions for extended periods may affect device reliability. For the parameter without Max./Min. limit, the typical value defines the operation range, the accuracy is not guaranteed by the specification.

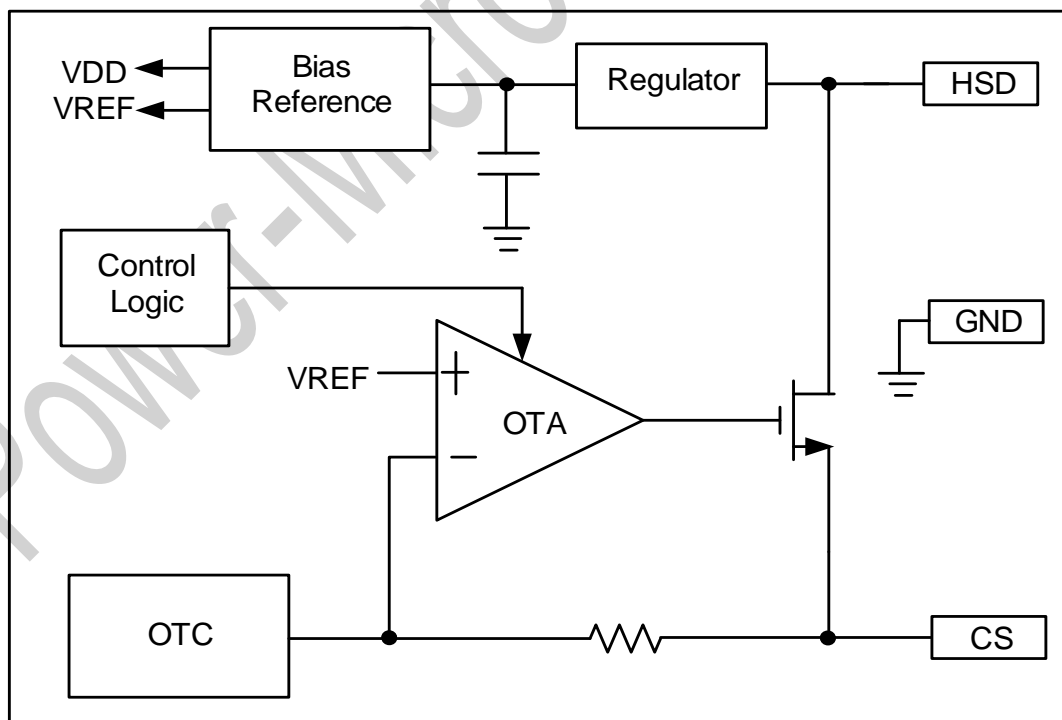
(2) All voltages are with respect to GND, unless otherwise specified.

## ELECTRICAL CHARACTERISTICS

(Ta=25°C unless otherwise specified)

Symbol	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>Supply</b>						
Vdrn_min	Minimum voltage of DRN	Tj=100°C, Iout=60mA	8			V
<b>Current Sense</b>						
Vcs	CS Compare Voltage		570	600	630	mV
<b>Over Thermal Compensation</b>						
Totc	OTC Reference	U		170		°C
		H		150		°C
		M		130		°C
RFT	Ratio Of OTC	U		-100		%/30°C
		H,M		-100		%/15°C

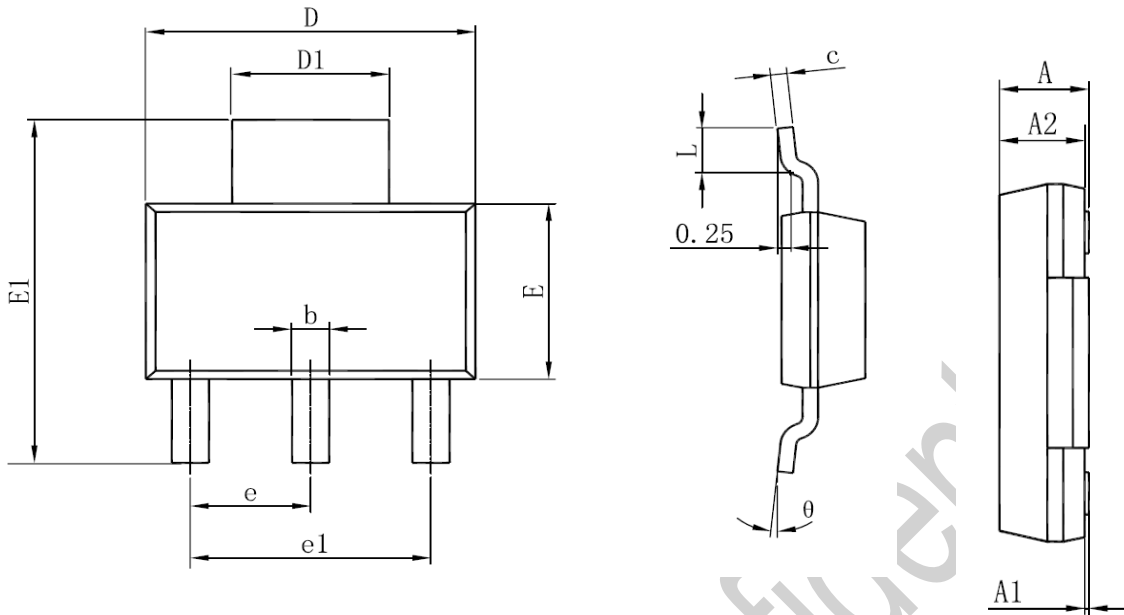
## BLOCK DIAGRAM



# PM2011 LED SINGLE STAGE LINEAR CHIP

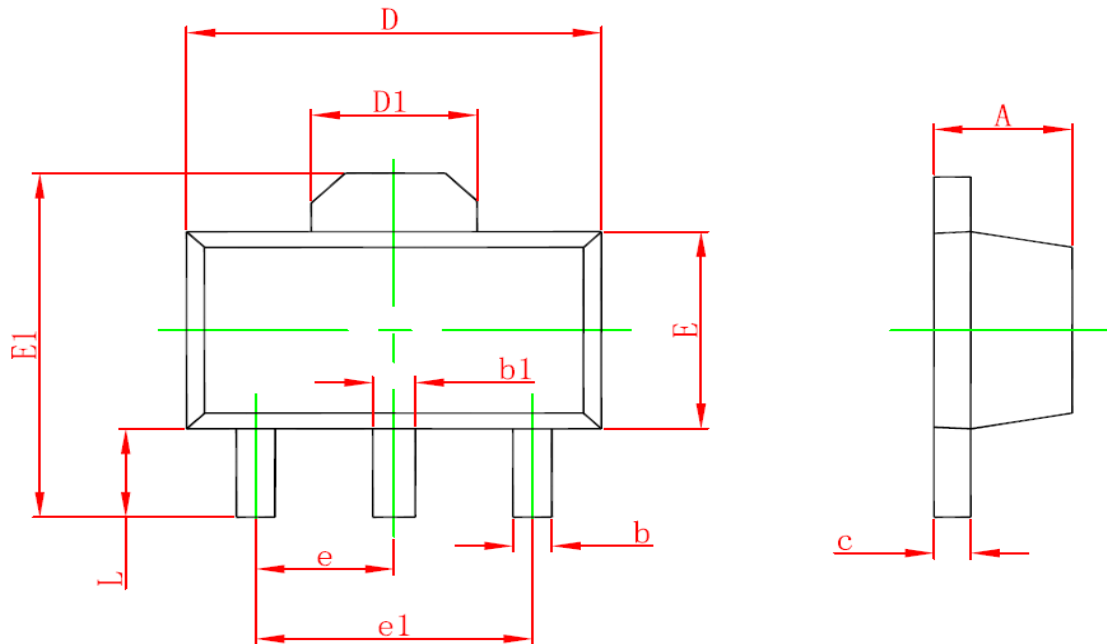


## SOT-223 PACKAGE OUTLINE DIMENSIONS



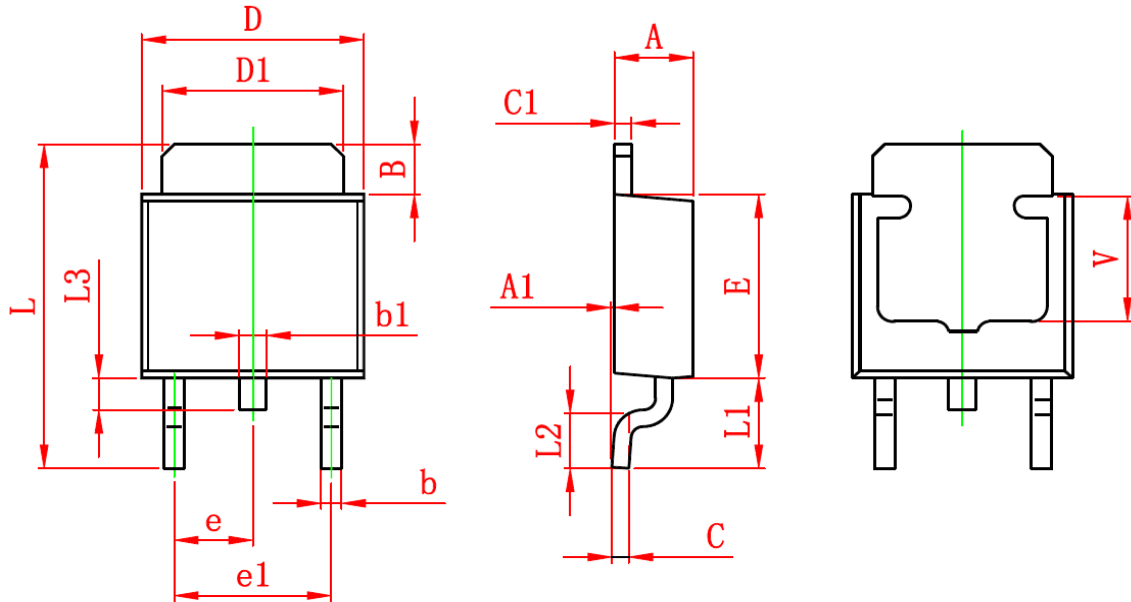
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.500	1.800	0.059	0.071
A1	0.000	0.100	0.000	0.004
A2	1.450	1.750	0.057	0.069
b	0.660	0.780	0.026	0.030
c	0.250	0.350	0.010	0.014
D	6.200	6.700	0.244	0.264
D1	2.900	3.100	0.114	0.122
E	3.300	3.600	0.130	0.142
E1	6.800	7.200	0.268	0.283
e	2.300 (BSC)		0.091 (BSC)	
e1	4.500	4.700	0.177	0.185
L	0.900	1.150	0.035	0.045
θ	0°	10°	0°	10°

SOT-89-3L PACKAGE OUTLINE DIMENSIONS



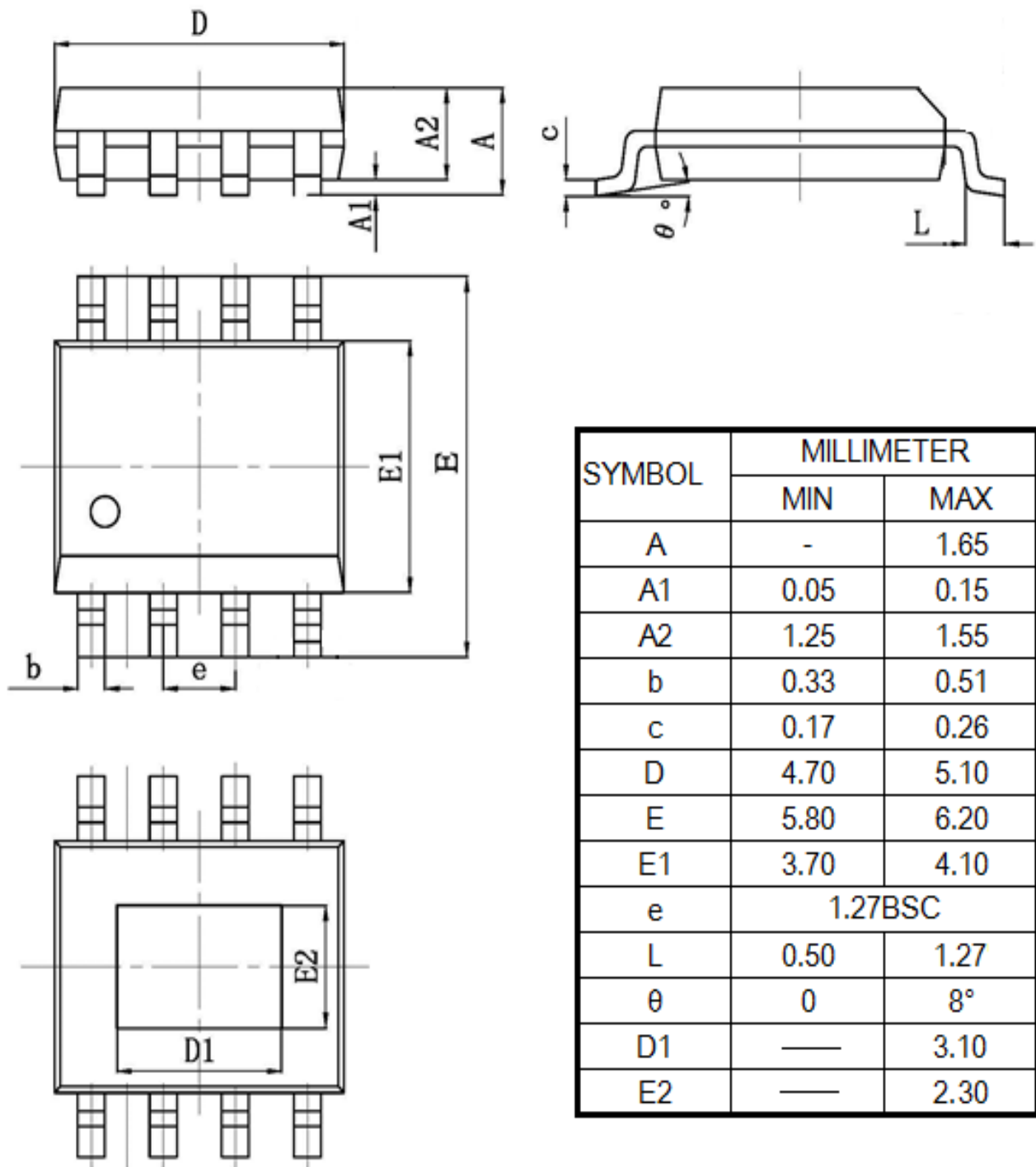
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.470	0.013	0.018
b1	0.400	0.560	0.016	0.022
c	0.350	0.460	0.014	0.018
D	4.300	4.700	0.169	0.185
D1	1.700REF		0.067REF	
E	2.300	2.700	0.091	0.106
E1	3.940	4.400	0.155	0.173
e	1.500TYP		0.060TYP	
e1	3.000TYP		0.118TYP	
L	0.800	1.200	0.031	0.047

**TO-252-3L PACKAGE OUTLINE DIMENSIONS**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	2.200	2.400	0.087	0.094
A1	0.000	0.100	0.000	0.004
B	0.900	1.250	0.035	0.049
b	0.500	0.840	0.020	0.034
c	0.430	0.570	0.017	0.023
D	6.350	6.700	0.250	0.264
D1	5.200	5.400	0.205	0.213
E	5.400	6.200	0.213	0.244
e	2.300TYP		0.091TYP	
e1	4.500	4.700	0.177	0.185
L	9.500	10.300	0.374	0.406
L2	1.400	1.600	0.055	0.063
L3	0.600	1.000	0.024	0.039
V	3.800REF		0.150REF	

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## VERSION INFORMATION

Modify	Version	Change Note
2018-2-5	Draft	First version
2018-6-2	V1.2	Add PM2011F
2019-4-26	V1.3	Remove L version, add U version

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