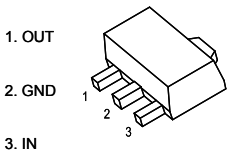
FEATURE

Maximum output current
I_{OM}: 0.1 A
Output voltage
V_O : 15 V
Continuous total dissipation
P_D: 0.5 W

78L15

SOT-89-3L



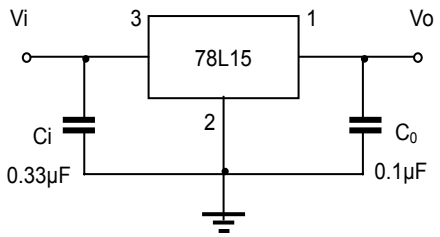
ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

Parameter	Symbol	Value	Units
Input Voltage	V_I	30	V
Operating Junction Temperature Range	T_{OPR}	0~+150	℃
Storage Temperature Range	T_{STG}	-55~+150	℃

ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JINCTION TEMPERATURE

Parameter	Symbol	Test conditions		Min	Typ	Max	Unit
Output voltage	Vo		25℃	14.4	15	15.6	V
		17.5V≤V_i≤30V,Io=1mA-40mA	0-125℃	14.25	15	15.75	V
		V_i=23V, Io=1mA-70mA		14.25	15	15.75	V
Load Regulation	△Vo	Io=1mA-100mA, V_i=23V	25℃		25	150	mV
		Io=1mA-40mA, V_i=23V	25℃		15	75	mV
Line regulation	△Vo	17.5V≤Vi≤30V,Io=40mA	25℃		65	300	mV
		19V≤Vi≤30V,Io=40mA	25℃		58	250	mV
Quiescent Current	Iq		25℃		4.6	6.5	mA
Quiescent Current Change	△Iq	19V≤Vi≤30V, Io=40mA	0-125℃			1.5	mA
	△Iq	1mA≤I_O≤40mA, Vi=23V	0-125℃			0.1	mA
Output Noise Voltage	V_N	10Hz≤f≤100KHz	25℃		82		μV
Ripple Rejection	RR	18.5V≤Vi≤28.5V,f=120Hz	0-125℃	34	39		dB
Dropout Voltage	Vd		25℃		1.7		V

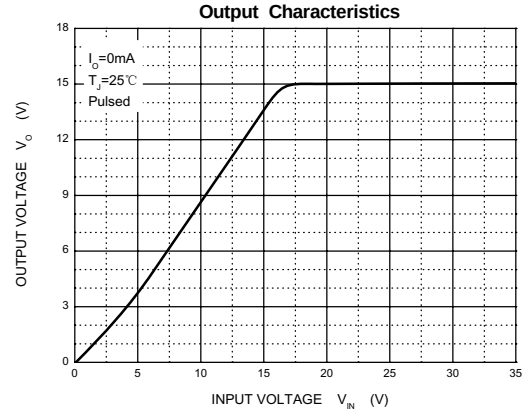
TYPICAL APPLICATION



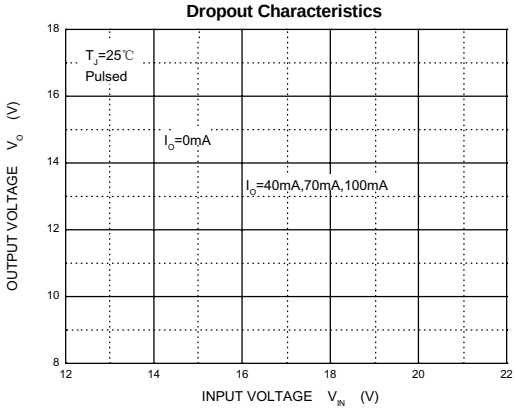
Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

RATING AND CHARACTERISTIC CURVES

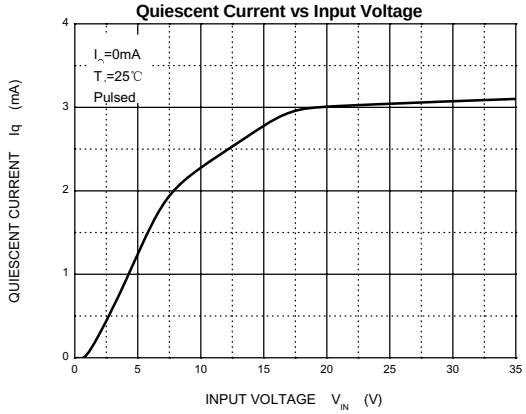
Output Characteristics



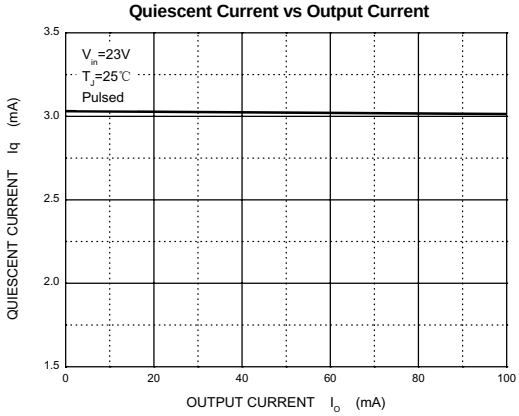
Dropout Characteristics



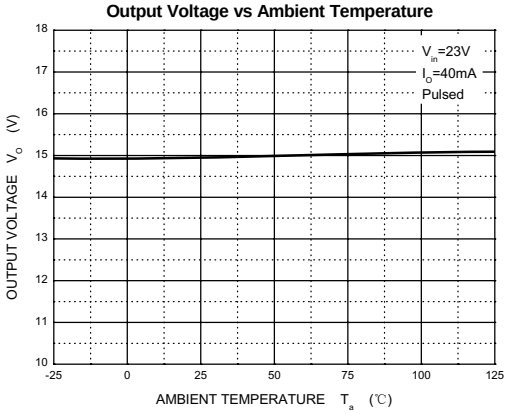
Quiescent Current vs Input Voltage



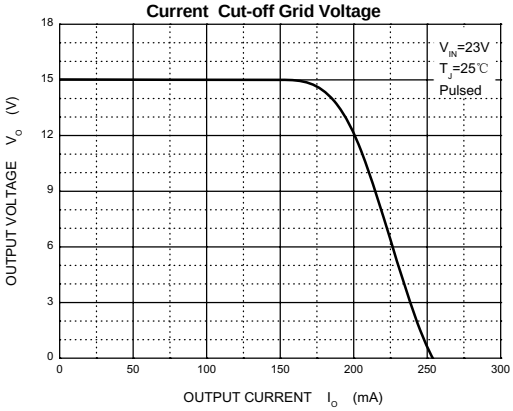
Quiescent Current vs Output Current



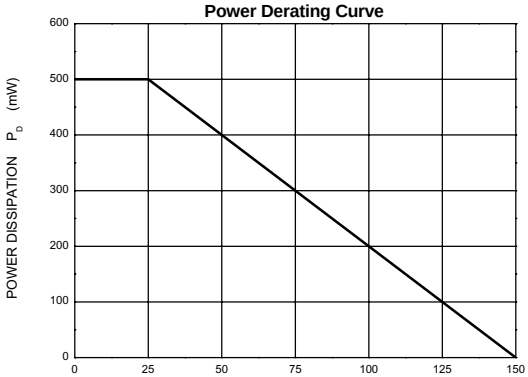
Output Voltage vs Ambient Temperature



Current Cut-off Grid Voltage



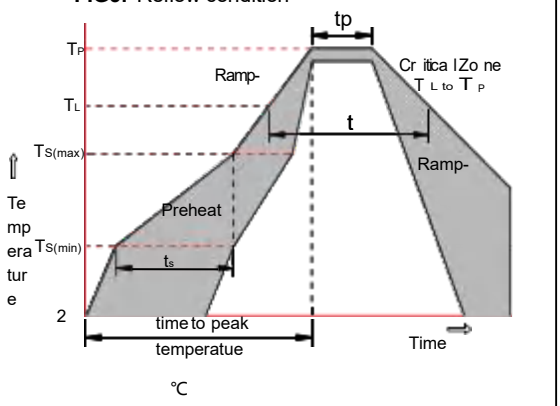
Power Derating Curve



Soldering parameters

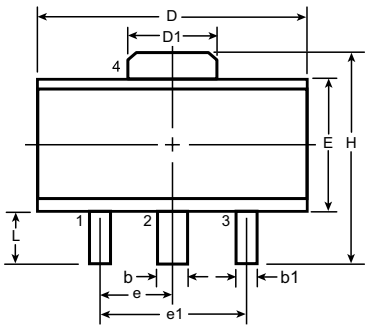
Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃

FIG5: Reflow condition

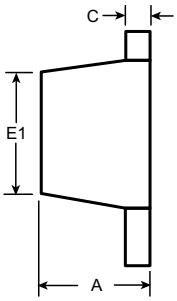


Package Dimensions & Suggested Pad Layout

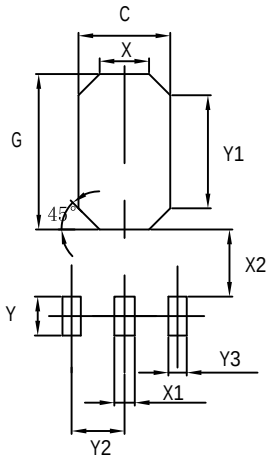
SOT89



Top View



Side View

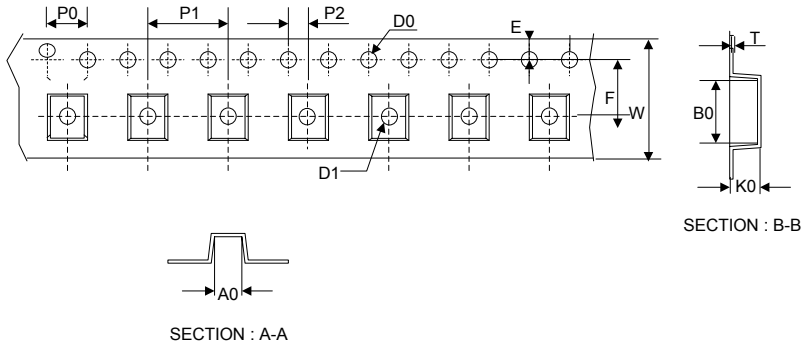


Symbol		A	b	b1	C	D	D1	E	E1	e	e1	H	L
Dimensions (mm)	MIN	1.40	0.44	0.36	0.3	4.40	1.50	2.29	2.00†	1.50 BSC	3.00 BSC	3.94	0.89
	NOM	-	-	-	-	-	-	-	-			-	-
	MAX	1.60	0.56	0.48	0.5	4.60	1.75	2.60	2.29			4.25	1.20

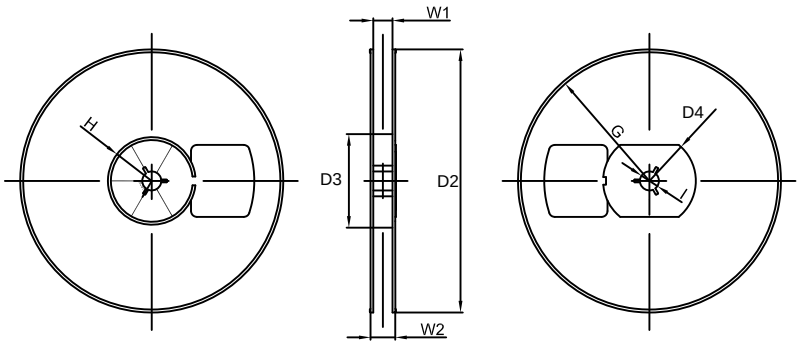
Dimensions	Value (in mm)
C	2.50
G	3.60
X	1.40
X1	0.90
X2	0.90
Y	1.40
Y1	2.60
Y2	1.50
Y3	0.90

Tape & rell specification

Tape



13” Reel



Symbol	Dimension (mm)
P0	4.00±0.20
P1	8.00±0.20
P2	2.00±0.20
D0	1.60±0.20
D1	1.60±0.20
E	1.75±0.20
F	7.50±0.15
W	16.00±0.20
A0	6.30±0.20
B0	8.25±0.20
K0	2.60±0.20
T	0.23±0.10
D2	180.0±5.0
D3	60Min.
D4	R32.0±2.0
G	R86.5±2.0
H	R30.0±2.0
I	13.0±2.0
W1	13.20±2.0
W2	16.50±2.0
Quantity: 1000PCS	