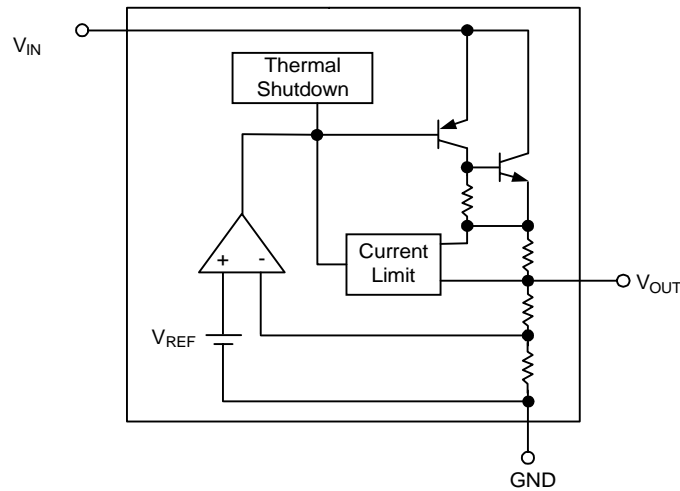


Block Diagram



Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
V_{IN}	Input Voltage	9	V
I_{OUT}	Output Current	0.75	A
T_A	Operating Ambient Temperature Range	0 to 70	°C
T_J	Operating Junction Temperature Range	-40 to +150	°C
T_{STG}	Storage Temperature Range	-65 to +150	°C
P_D	Power Dissipation	Internal limited	mW
θ_{JA}	Thermal Resistance Junction to Ambient	180	°C / W

Electrical Characteristics ($T_A=25^\circ\text{C}$, unless otherwise noted)

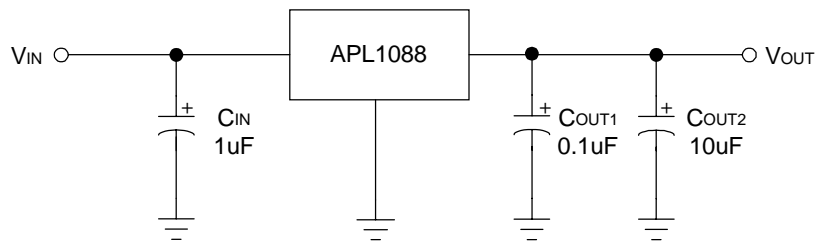
Symbol	Parameter	Test Conditions	APL1088			Unit
			Min.	Typ.	Max.	
V_{IN}	Input Voltage		2.75		9	V
V_{OUT}	Output Voltage	$I_{OUT}=10\text{mA}$	1.225	1.250	1.275	V
I_{OUT}	Output Current Capability	$V_{OUT}=3.3\text{V}, \Delta V_{OUT}=2\%$	500			mA
I_{SC}	Short Circuit Current	$V_{OUT} < 0.4\text{V}$		1.0		A
I_{ADJ}	Adjustable Pin Current	$V_{IN}=5\text{V}$, No Load		60	120	uA
I_{LMIN}	Minimum Load Current	$2.75\text{V} \leq V_{IN} \leq 9.00\text{V}$,		2	10	mA
REG_{LINE}	Line Regulation	$I_{OUT}=10\text{mA}$, $V_{IN}=5\text{V}$ to 9V		1	6	mV
REG_{LOAD}	Load Regulation	$I_{OUT}=1\text{mA}\sim 500\text{mA}$		6	12	mV

Electrical Characteristics cont. ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

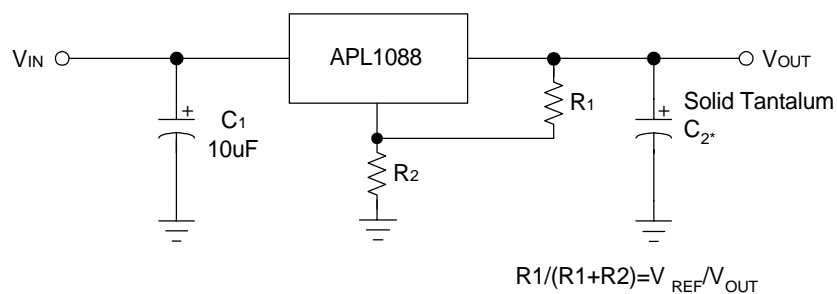
Symbol	Parameter	Test Conditions	APL1088			Unit
			Min.	Typ.	Max.	
V_{DROPOUT}	Dropout Voltage	$I_{\text{OUT}}=500\text{mA}$, $\Delta V_{\text{OUT}}=1\%$			1500	mV
PSRR	Power Supply Rejection Ratio	at 1kHz		55		dB
OTS	Over Temperature Shutdown			150		$^{\circ}\text{C}$
E_N	Output Noise			100		μVrms
TC	Output Voltage Temperature Coefficient			100		ppm/ $^{\circ}\text{C}$

Application Schematic

Fixed 1.250V Output



Programmable Output setting by External Resistors(R1 and R2)

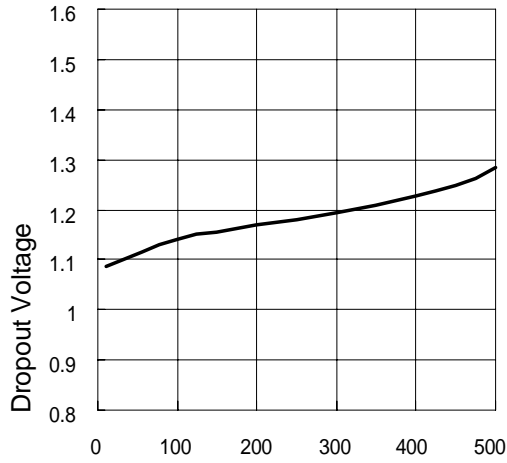


* Required for stability, APL1088 : $C_2=10\mu\text{F}$

* R1 is typically in range of 100Ω to 120Ω to meet I_{min} requirement.

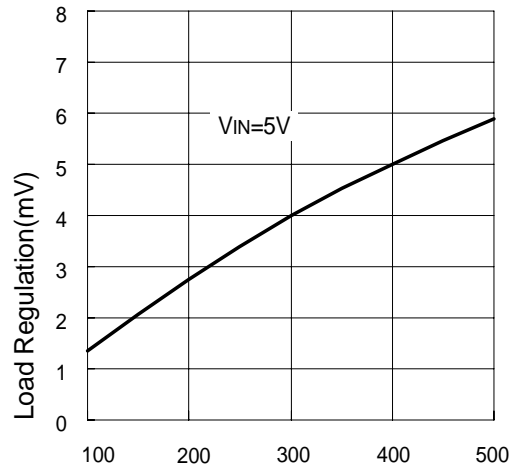
Typical Characteristics

I_{out} vs. Dropout Voltage



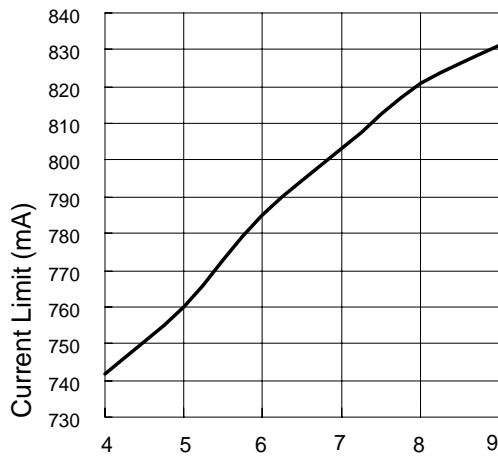
Output Current

I_{out} vs. Load Regulation



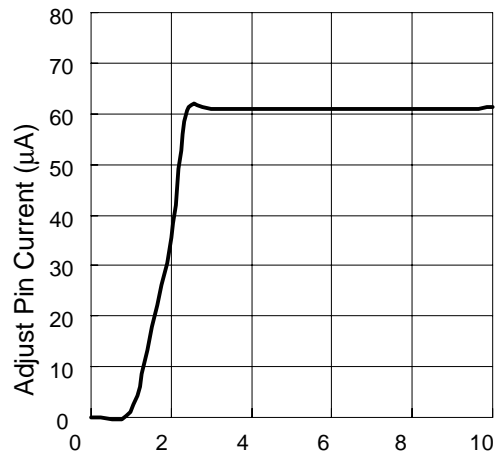
Output Current

Input Voltage vs. Current limit



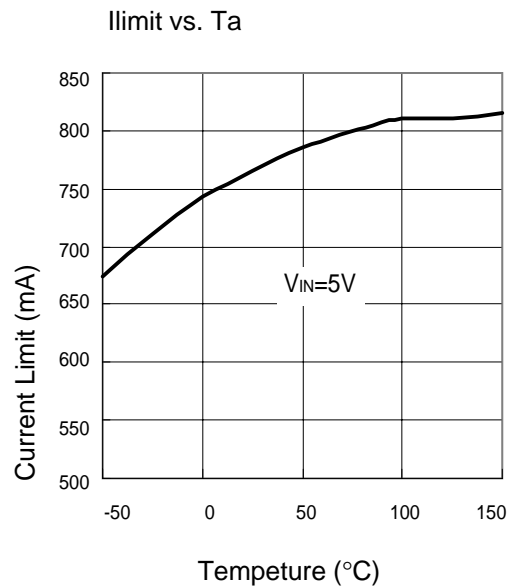
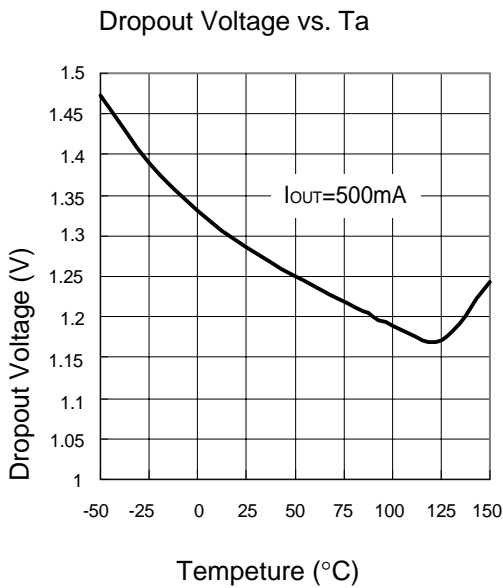
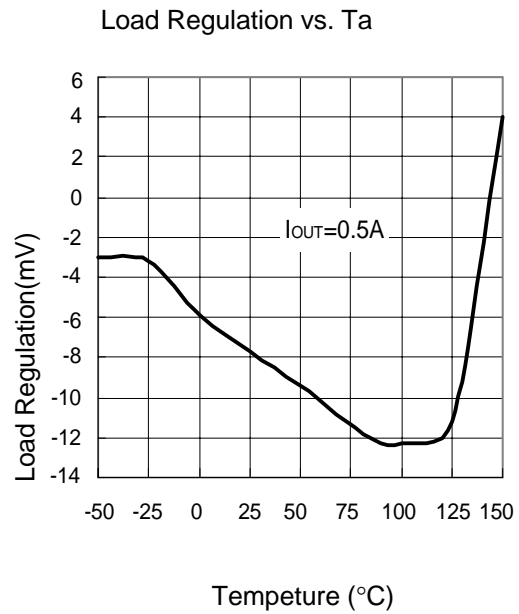
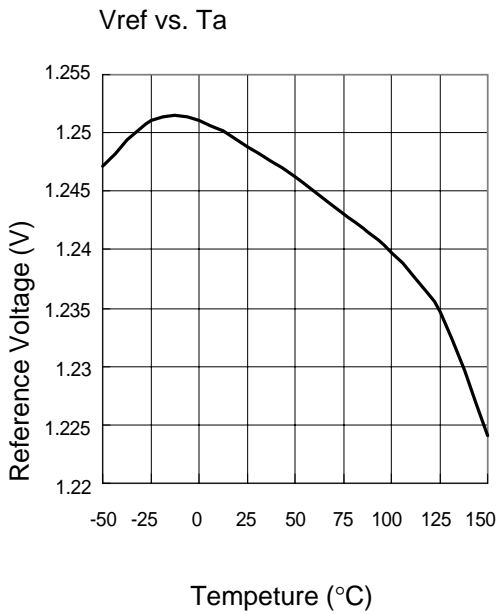
Input Voltage (V)

Input Voltage vs. Adjust Current

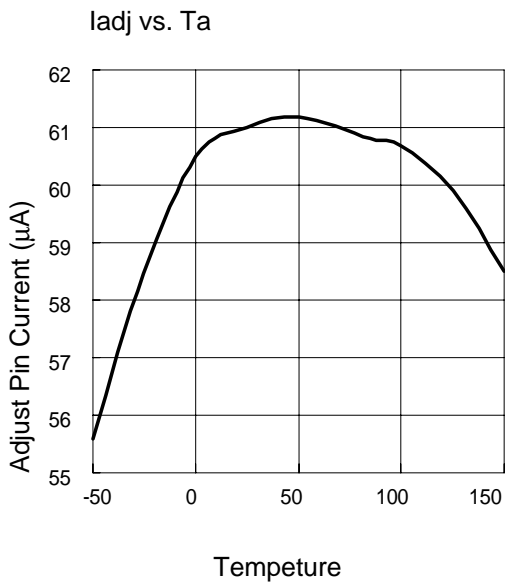
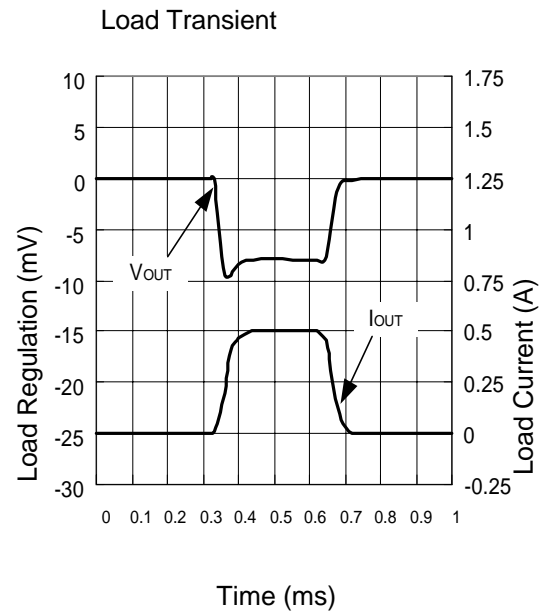
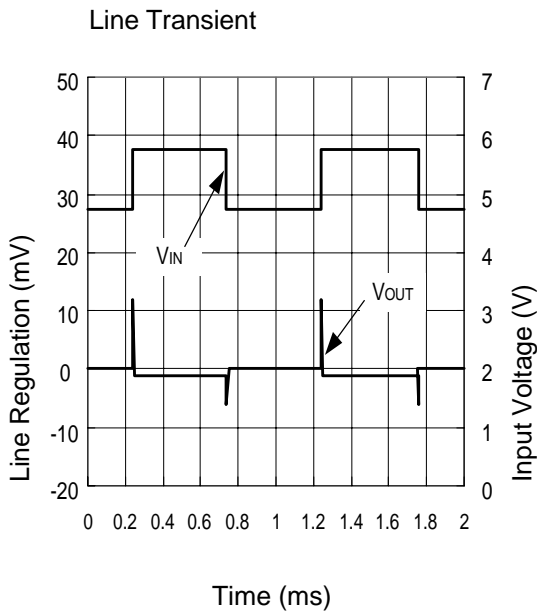


Input Voltage (V)

Typical Characteristics



Typical Characteristics Cont.



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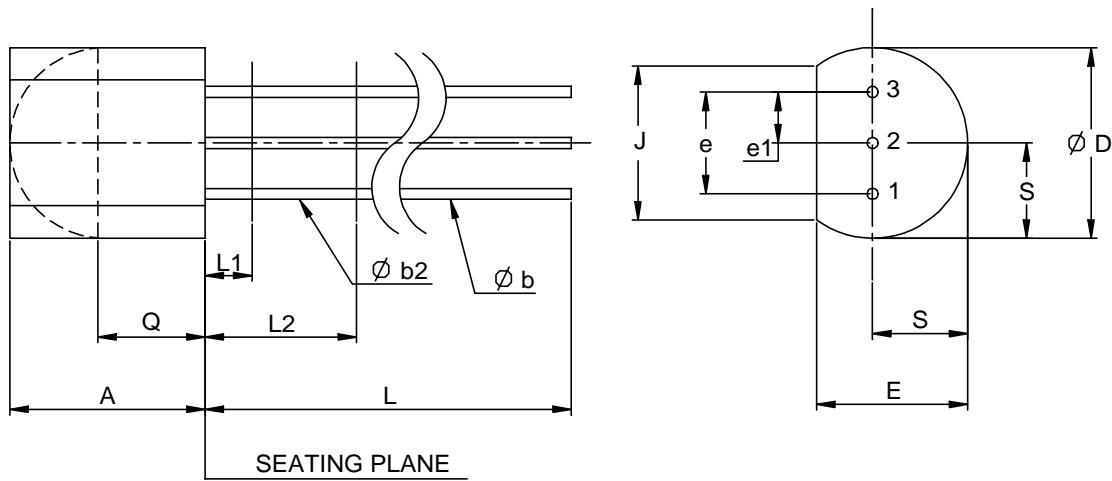
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Package Information

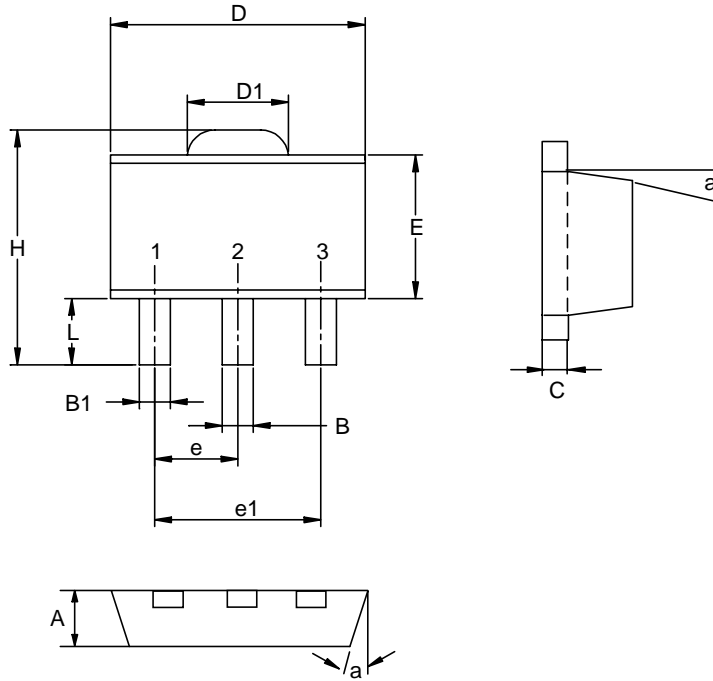
TO-92



Dim	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.58	5.33	0.170	0.210
φ b	0.41	0.53	0.160	0.021
φ b2	0.41	0.48	0.160	0.019
φ D	4.96	5.20	0.175	0.205
E	3.94	4.19	0.125	0.165
e	2.42	2.66	0.095	0.105
e1	1.15	1.39	0.045	0.055
J	3.43		0.135	
L	12.70		0.500	
L1		1.27		0.050
L2	6.35		0.250	
Q	2.93		0.115	
S	2.42	2.66	0.080	0.105

Package Information

SOT-89 (Reference EIAJ ED-7500A Registration SC-62)

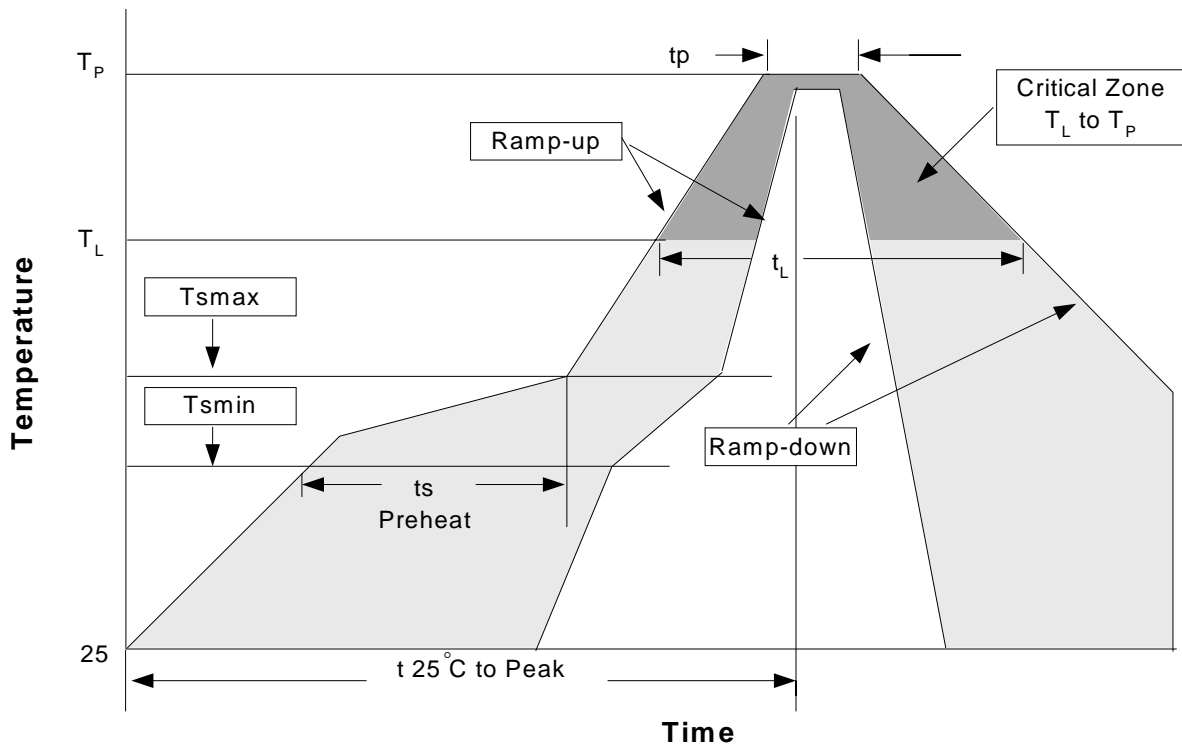


Dim	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.40	1.60	0.055	0.063
B	0.40	0.56	0.016	0.022
B1	0.35	0.48	0.014	0.019
C	0.35	0.44	0.014	0.017
D	4.40	4.60	0.173	0.181
D1	1.35	1.83	0.053	0.072
e	1.50 BSC		0.059 BSC	
e1	3.00 BSC		0.118 BSC	
E	2.29	2.60	0.090	0.102
H	3.75	4.25	0.148	0.167
L	0.80	1.20	0.031	0.047
α		10°		10°

Physical Specifications

Terminal Material	Solder-Plated Copper (Solder Material : 90/10 or 63/37 SnPb), 100%Sn
Lead Solderability	Meets EIA Specification RSI86-91, ANSI/J-STD-002 Category 3.
Packaging	1000 devices per reel for SOT-89

Reflow Condition (IR/Convection or VPR Reflow)



Classification Reflow Profiles

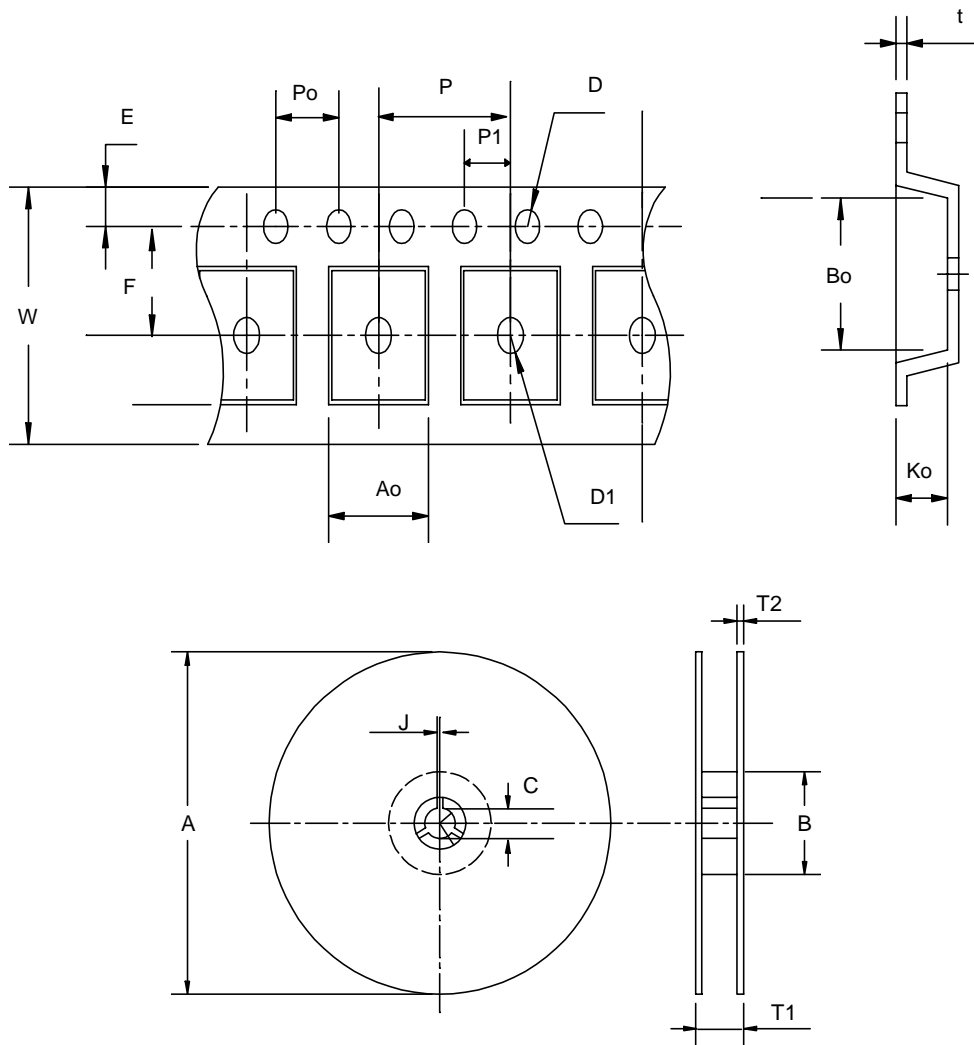
Profile Feature	Sn-Pb Eutectic Assembly		Pb-Free Assembly	
	Large Body	Small Body	Large Body	Small Body
Average ramp-up rate (T _L to T _P)	3°C/second max.		3°C/second max.	
Preheat				
- Temperature Min (T _{smin})	100°C		150°C	
- Temperature Mix (T _{smax})	150°C		200°C	
- Time (min to max)(t _s)	60-120 seconds		60-180 seconds	
T _{smax} to T _L				
- Ramp-up Rate			3°C/second max	
T _{smax} to T _L				
- Temperature(T _L)	183°C		217°C	
- Time (t _L)	60-150 seconds		60-150 seconds	
Peak Temperature(T _p)	225 +0/-5°C	240 +0/-5°C	245 +0/-5°C	250 +0/-5°C
Time within 5°C of actual Peak Temperature(t _p)	10-30 seconds	10-30 seconds	10-30 seconds	20-40 seconds
Ramp-down Rate	6°C/second max.		6°C/second max.	
Time 25°C to Peak Temperature	6 minutes max.		8 minutes max.	

Note: All temperatures refer to topside of the package. Measured on the body surface.

Reliability Test Program

Test item	Method	Description
SOLDERABILITY	MIL-STD-883D-2003	245°C, 5 SEC
HOLT	MIL-STD-883D-1005.7	1000 Hrs Bias @125°C
PCT	JESD-22-B,A102	168 Hrs, 100%RH, 121°C
TST	MIL-STD-883D-1011.9	-65°C~150°C, 200 Cycles
ESD	MIL-STD-883D-3015.7	VHBM > 2KV, VMM > 200V
Latch-Up	JESD 78	10ms, $1_{tr} > 100mA$

Carrier Tape & Reel Dimensions



Carrier Tape & Reel Dimensions

Application	A	B	C	J	T1	T2	W	P	E
SOT-89	178 ±1	70 ± 2	13.5 ± 0.15	3 ± 0.15	14 ± 2	1.3 ± 0.3	12 + 0.3 12 - 0.1	8 ± 0.1	1.75 ± 0.1
Application	F	D	D1	Po	P1	Ao	Bo	Ko	t
SOT-89	5.5 ± 0.05	1.5 ± 0.1	1.5 ± 0.1	4.0 ± 0.1	2.0 ± 0.1	4.8 ± 0.1	4.5 ± 0.1	1.80 ± 0.1	0.3 ± 0.013

(mm)

Cover Tape Dimensions

Application	Carrier Width	Cover Tape Width	Devices Per Reel
SOT-89	12	9.3	1000

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