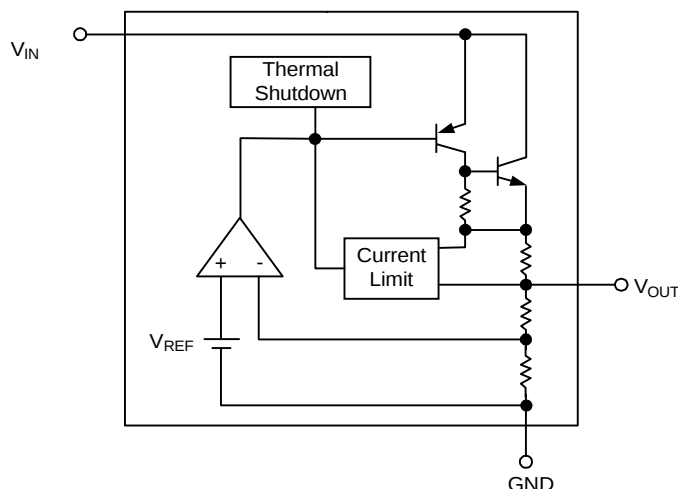


Block Diagram



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)

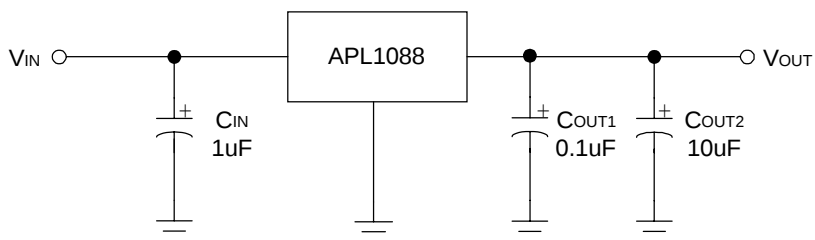
Symbol	Parameter	Test Conditions	APL1088			Unit
			Min.	Typ.	Max.	
V_{IN}	Input Voltage		2.75		9	V
V_{OUT}	Output Voltage	$I_{OUT}=10\text{mA}$	1.225	1.250	1.275	V
I_{OUT}	Output Current Capability	$V_{OUT}=3.3\text{V}$, $\Delta V_{OUT}=2\%$	500			mA
I_{SC}	Short Circuit Current	$V_{OUT} < 0.4\text{V}$		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)

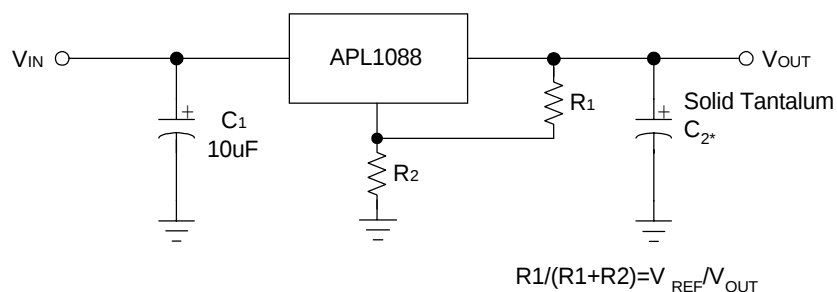
Symbol	Parameter	Test Conditions	APL1088			Unit
			Min.	Typ.	Max.	
V_{DROPOUT}	Dropout Voltage	$I_{\text{OUT}}=500\text{mA}$, $\Delta V_{\text{OUT}}=1\%$			1500	mV
PSRR	Power Supply Rejection Ratio	at 1kHz		55		dB
OTS	Over Temperature Shutdown			150		$^{\circ}\text{C}$
E_N	Output Noise			100		μVrms
TC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

Application Schematic

Fixed 1.250V Output



Programmable Output setting by External Resistors(R1 and R2)

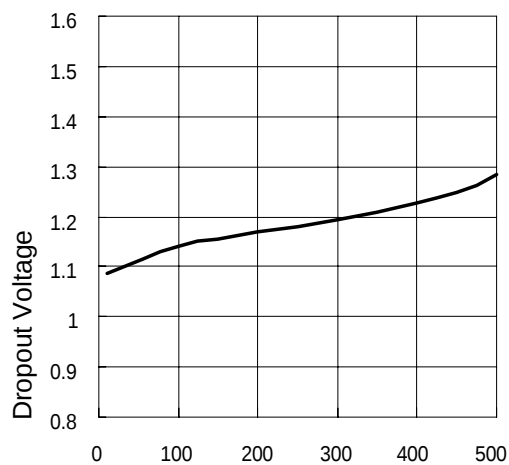


* Required for stability, APL1088 : $C_2=10\mu\text{F}$

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

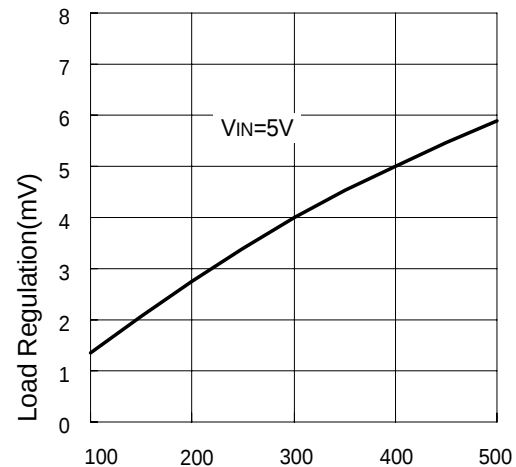
Typical Characteristics

I_{out} vs. Dropout Voltage



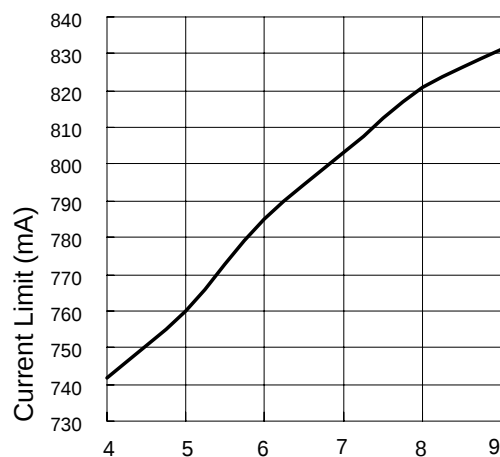
Output Current

I_{out} vs. Load Regulation



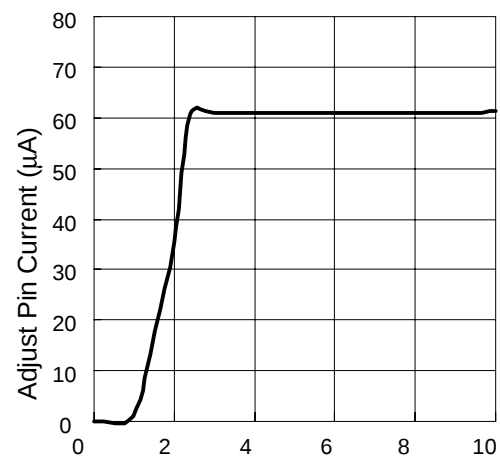
Output Current

Input Voltage vs. Current limit



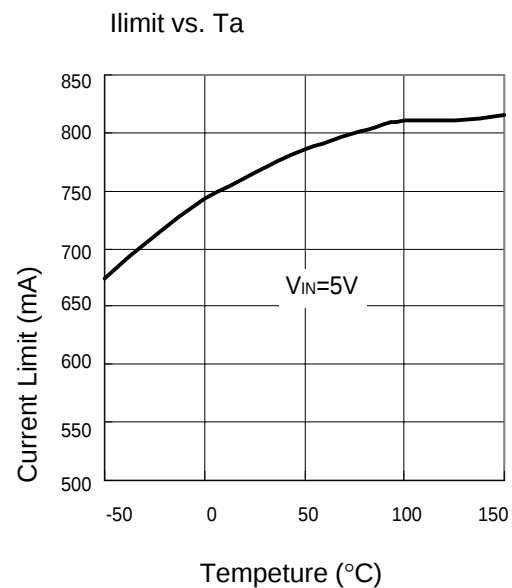
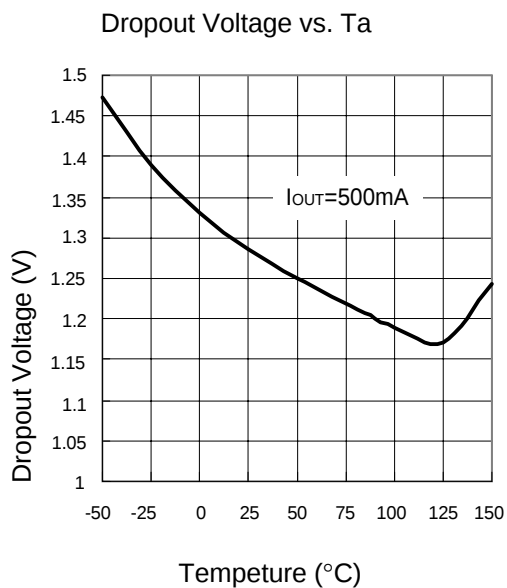
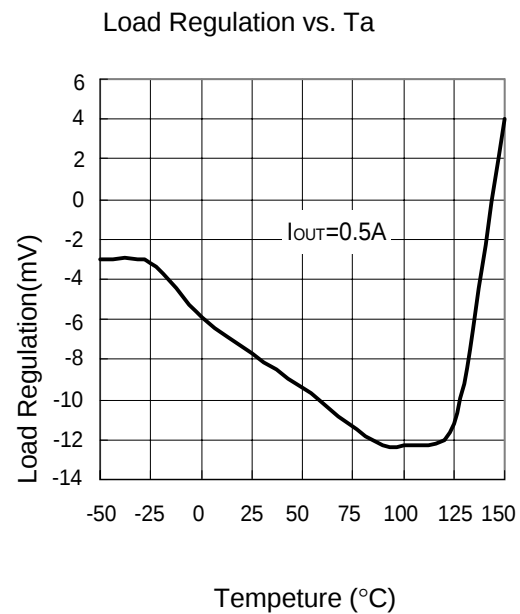
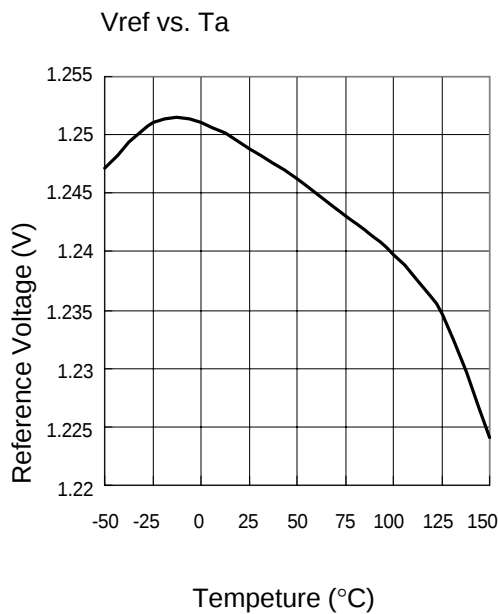
Input Voltage (V)

Input Voltage vs. Adjust Current

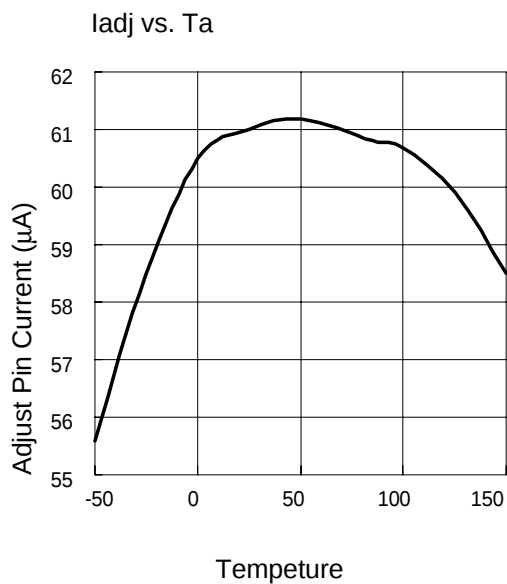
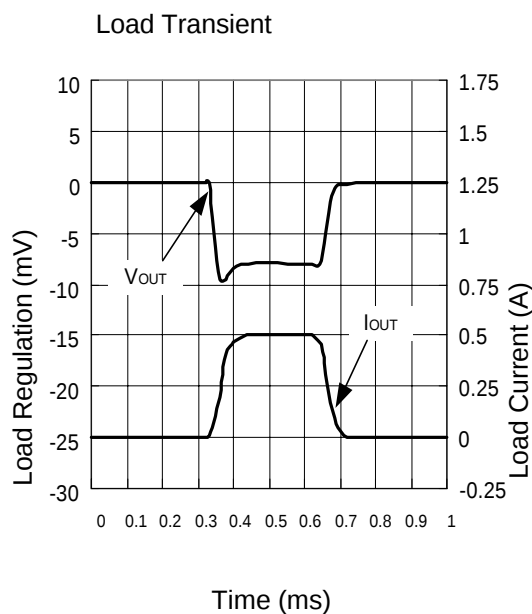
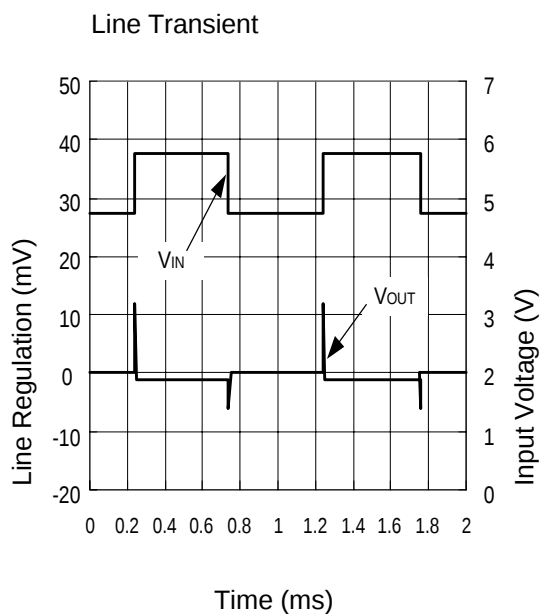


Input Voltage (V)

Typical Characteristics



Typical Characteristics Cont.



Customer Service

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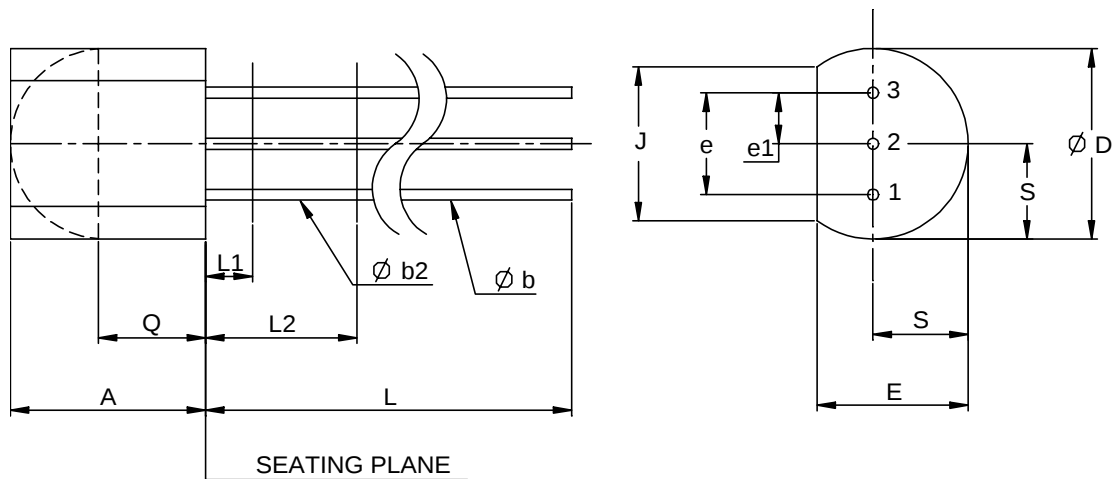
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Taiwan, R. O. C.

Tel : 886-2-89191368

Fax : 886-2-89191369

Package Information

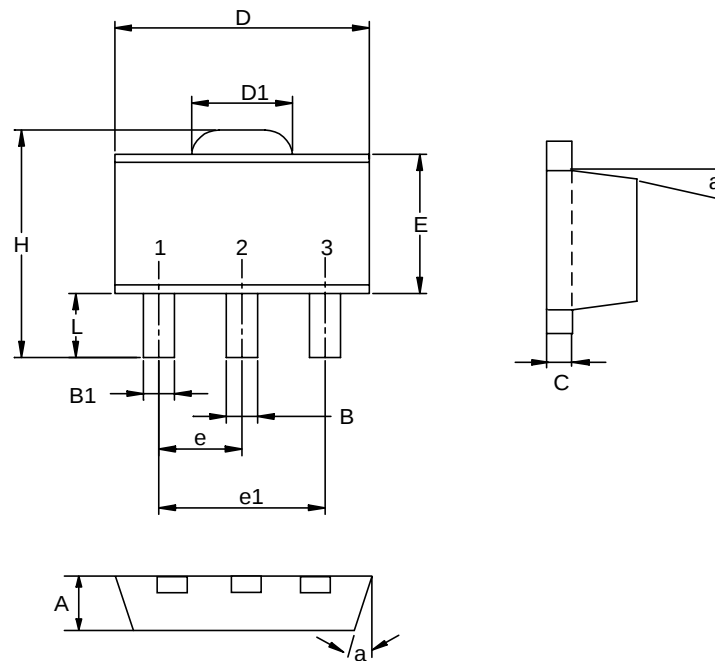
TO-92



Dim	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.58	5.33	0.170	0.210
ϕb	0.41	0.53	0.160	0.021
$\phi b2$	0.41	0.48	0.160	0.019
ϕD	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)



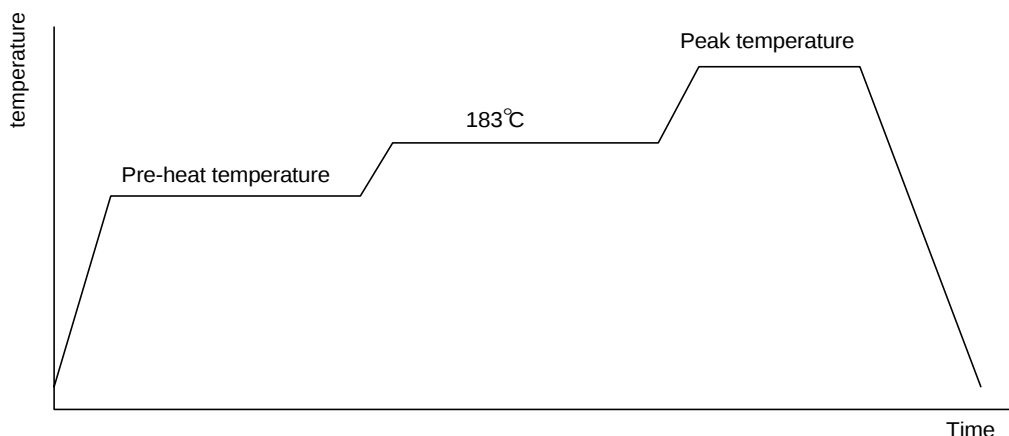
Dim	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.40	1.60	0.055	0.063
B	0.40	0.56	0.016	0.022
B1	0.35	0.48	0.014	0.019
C	0.35	0.44	0.014	0.017
D	4.40	4.60	0.173	0.181
D1	1.35	1.83	0.053	0.072
e	1.50 BSC		0.059 BSC	
e1	3.00 BSC		0.118 BSC	
E	2.29	2.60	0.090	0.102
H	3.75	4.25	0.148	0.167
L	0.80	1.20	0.031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

Physical Specifications

Terminal Material	Solder-Plated Copper (Solder Material : 90/10 or 63/37 SnPb).
Lead Solderability	Meets EIA Specification RS186-91, ANSI/J-STD-002 Category 3.
Packaging	1000 devices per reel for SOT-89

Reflow Condition (IR/Convection or VPR Reflow)

Reference JEDEC Standard J-STD-020A APRIL 1999



Classification Reflow Profiles

	Convection or IR/ Convection	VPR
Average ramp-up rate(183°C to Peak)	3°C/second max.	10 °C /second max.
Preheat temperature 125 ± 25°C)	120 seconds max.	
Temperature maintained above 183°C	60 ~ 150 seconds	
Time within 5°C of actual peak temperature	10 ~ 20 seconds	60 seconds
Peak temperature range	220 +5/-0°C or 235 +5/-0°C	215~ 219°C or 235 +5/-0°C
Ramp-down rate	6 °C /second max.	10 °C /second max.
Time 25°C to peak temperature	6 minutes max.	

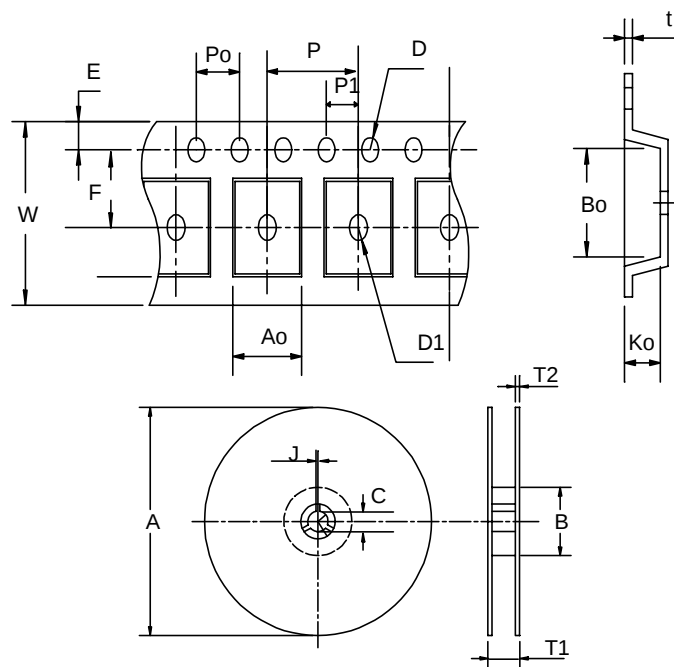
Package Reflow Conditions

pkg. thickness ≥ 2.5mm and all bags	pkg. thickness < 2.5mm and pkg. volume ≥ 350 mm ³	pkg. thickness < 2.5mm and pkg. volume < 350mm ³
Convection 220 +5/-0 °C		Convection 235 +5/-0 °C
VPR 215-219 °C		VPR 235 +5/-0 °C
IR/Convection 220 +5/-0 °C		IR/Convection 235 +5/-0 °C

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 , $I_{tr} > 100mA$

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	P0	P1	A0	B0	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

Package	SOT-89
Carrier Width	12
Cover Tape Width	9.3