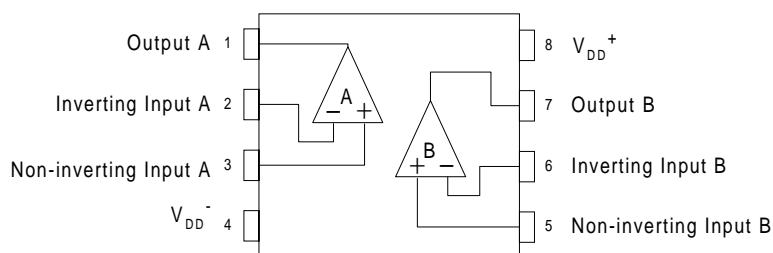


Block Diagram



Absolute Maximum Ratings $T_A = 25^\circ\text{C}$

Symbol	Parameter	Rating	Unit
V_{DD}	Supply Voltage	20	V
V_{ID}	Differential Input Voltage	20	V
V_I	Input Voltage	-0.3V to +20V	V
P_D	Power Dissipation	500	mW
T_A	Operating Free-air Temperature Range	0 to 70	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-40 to +150	$^\circ\text{C}$

Electrical Characteristics $V_{DD} = \pm 10\text{V}$, $T_A = 25^\circ\text{C}$

Symbol	Parameter	Test Conditions	APC558			Unit
			Min.	Typ.	Max.	
V_{IO}	Input Offset Voltage	$R_S \leq 10\text{k}\Omega$		1	3	mV
I_{IO}	Input Offset Current			2	10	nA
I_{BIAS}	Input Bias Current			25	70	nA
R_{IN}	Input Resistance		0.3	5		$\text{M}\Omega$
A_V	Large Signal Voltage Gain	$R_L \geq 2\text{k}\Omega$, $V_O = \pm 10\text{V}$	86	100		dB
V_{OM1}	Maximum Output Voltage Swing 1	$R_L \geq 10\text{k}\Omega$	± 9	± 9.5		V
V_{OM2}	Maximum Output Voltage Swing 2	$R_L \geq 2\text{k}\Omega$	± 8.5	± 9.0		V
V_{ICM}	Input Common-mode Voltage Range		± 9	± 9.5		V
CMRR	Common-mode Rejection Ratio	$R_S \leq 10\text{k}\Omega$		90		dB
SVRR	Supply Voltage Rejection Ratio	$R_S \leq 10\text{k}\Omega$, $V_{P-P} = 100\text{mV}$, $f_{IN} = 100\text{Hz}$	60	65		dB
I_{CC}	Operating Current			3.7	6	mA
V_{NI}	Equivalent Input Noise Voltage	RIAA, $R_S = 1\text{k}\Omega$, 30kHz, LPF		1.4		μVrms
SR	Slew Rate			650		$\text{mV}/\mu\text{s}$
GBWP	Gain Bandwidth Product			2		MHz

Typical Characteristics

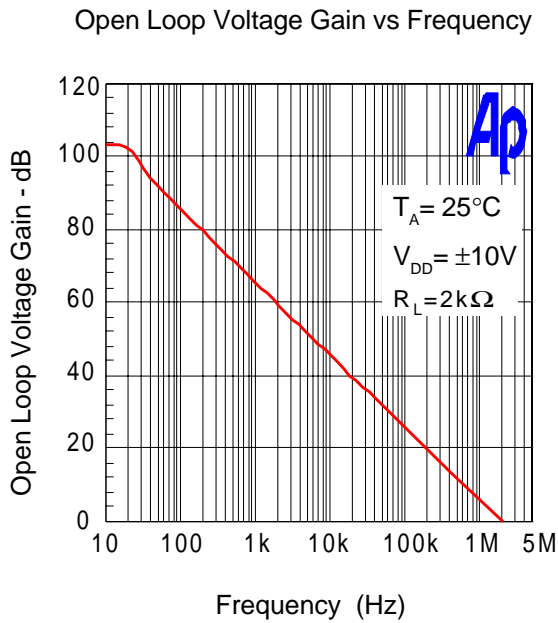


Figure 1

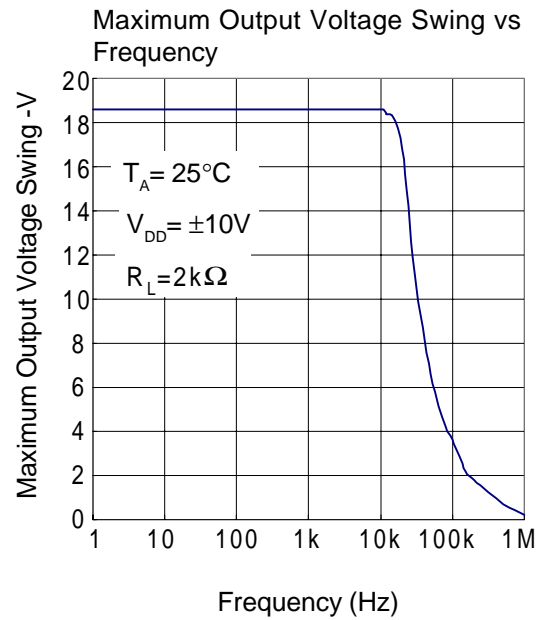


Figure 2

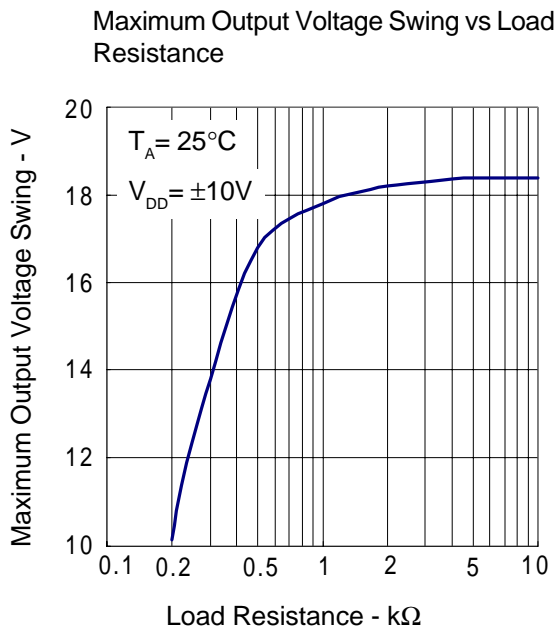


Figure 3

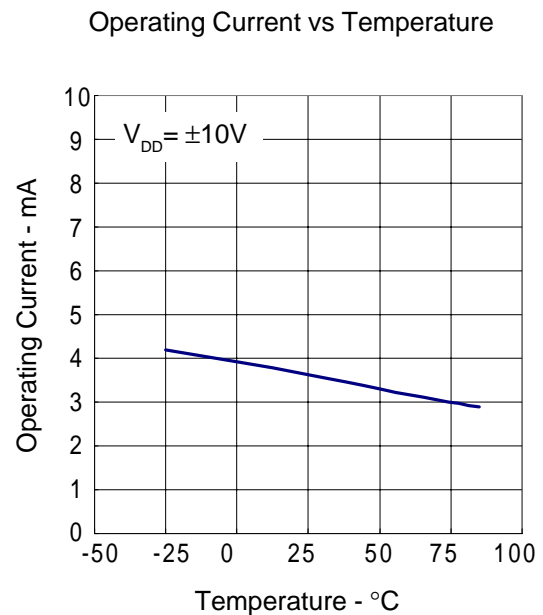


Figure 4

Typical Characteristics Cont.

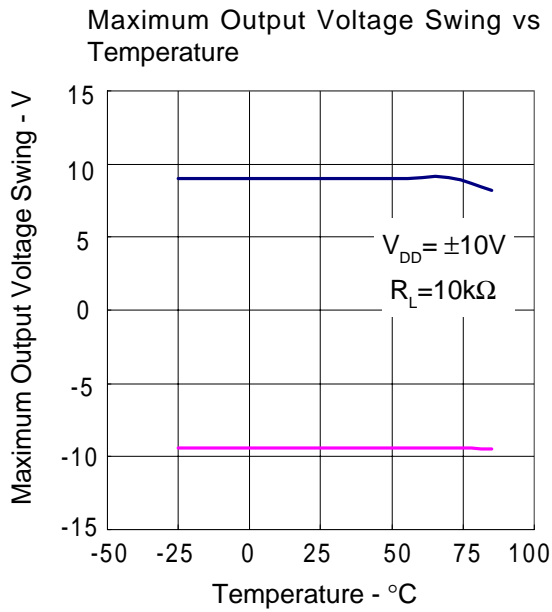


Figure 5

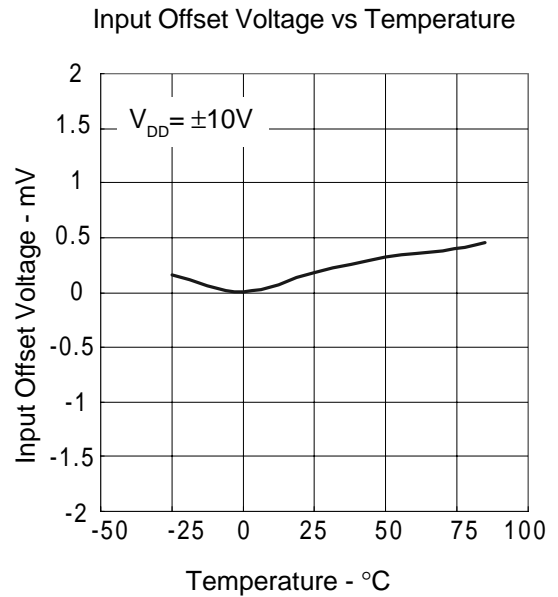


Figure 6

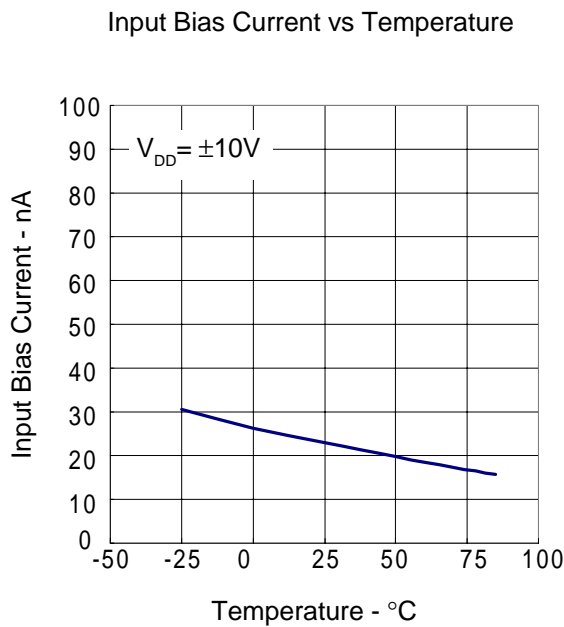


Figure 7

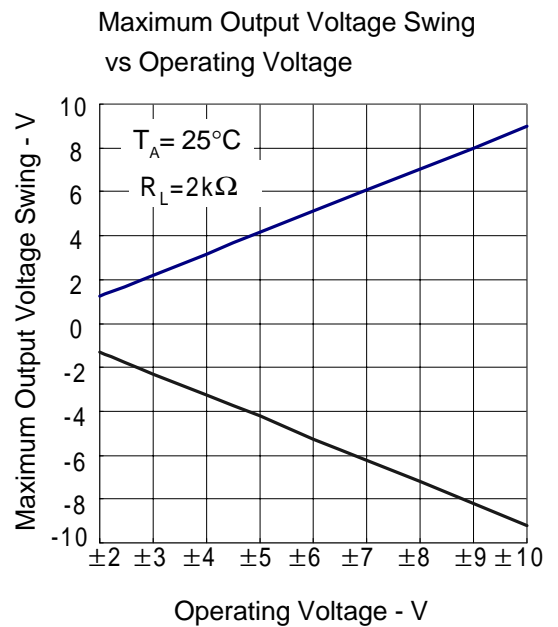


Figure 8

Typical Characteristics Cont.

Operating Current vs Operating Voltage

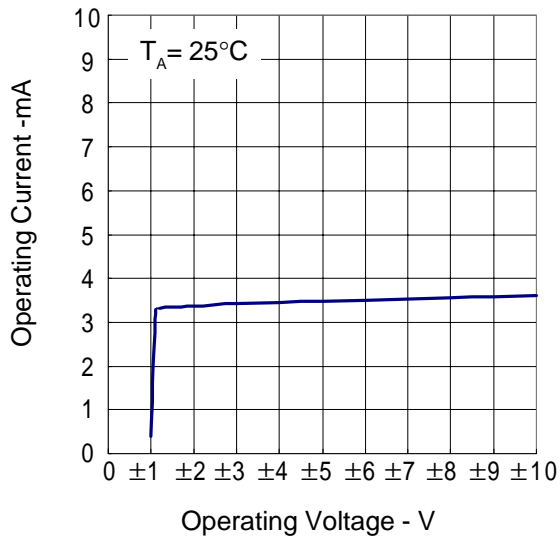


Figure 8

Voltage Follower pulse Response

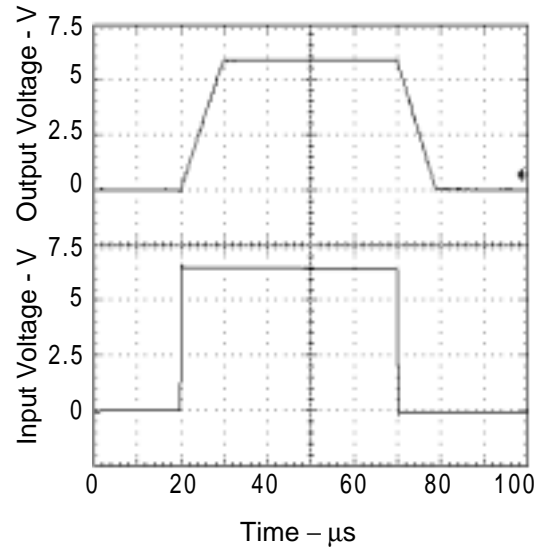
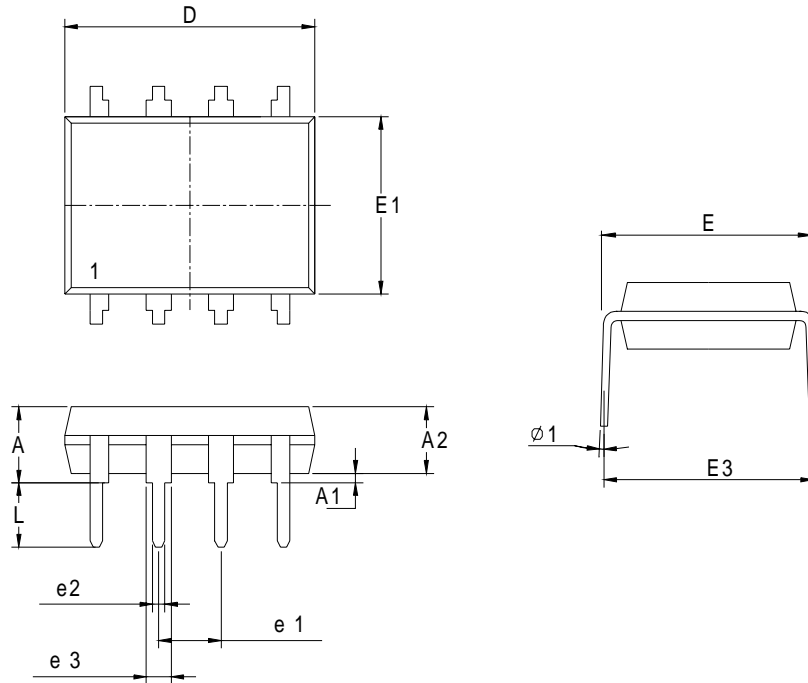


Figure 9

Package Information

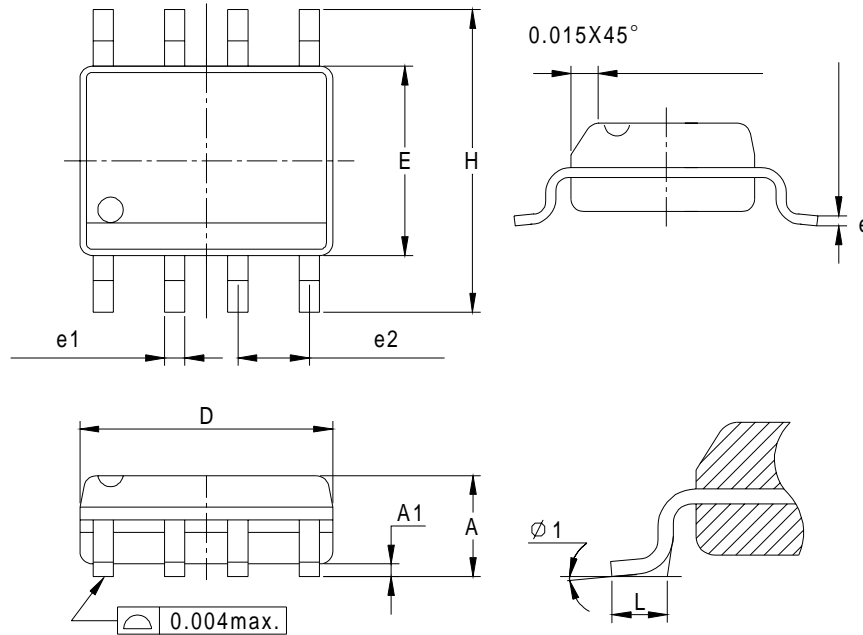
PDIP-8 pin (Reference JEDEC Registration MS-001)



Dim	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A		5.33		0.210
A1	0.38		0.015	
A2	2.92	3.68	0.115	0.145
D	9.02	10.16	0.355	0.400
e1	2.54BSC		0.100BSC	
e2	0.36	0.56	0.014	0.022
e3	1.14	1.78	0.045	0.070
E	7.62 BSC		0.300 BSC	
E1	6.10	7.11	0.240	0.280
E3		10.92		0.430
L	2.92	3.81	0.115	0.150
Ø 1	15°		15°	

Package Information

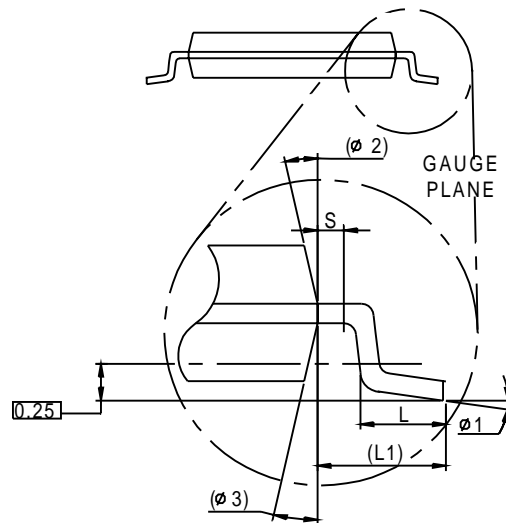
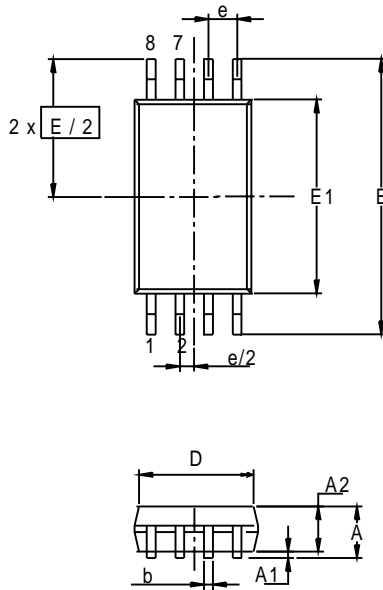
SOP- 8 pin (Reference JEDEC Registration MS-012)



Dim	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.35	1.75	0.053	0.069
A1	0.10	0.25	0.004	0.010
D	4.80	5.00	0.189	0.197
E	3.80	4.00	0.150	0.157
H	5.80	6.20	0.228	0.244
L	0.40	1.27	0.016	0.050
e1	0.33	0.51	0.013	0.020
e2	1.27BSC		0.50BSC	
phi 1	8°		8°	

Package Information

TSSOP-8

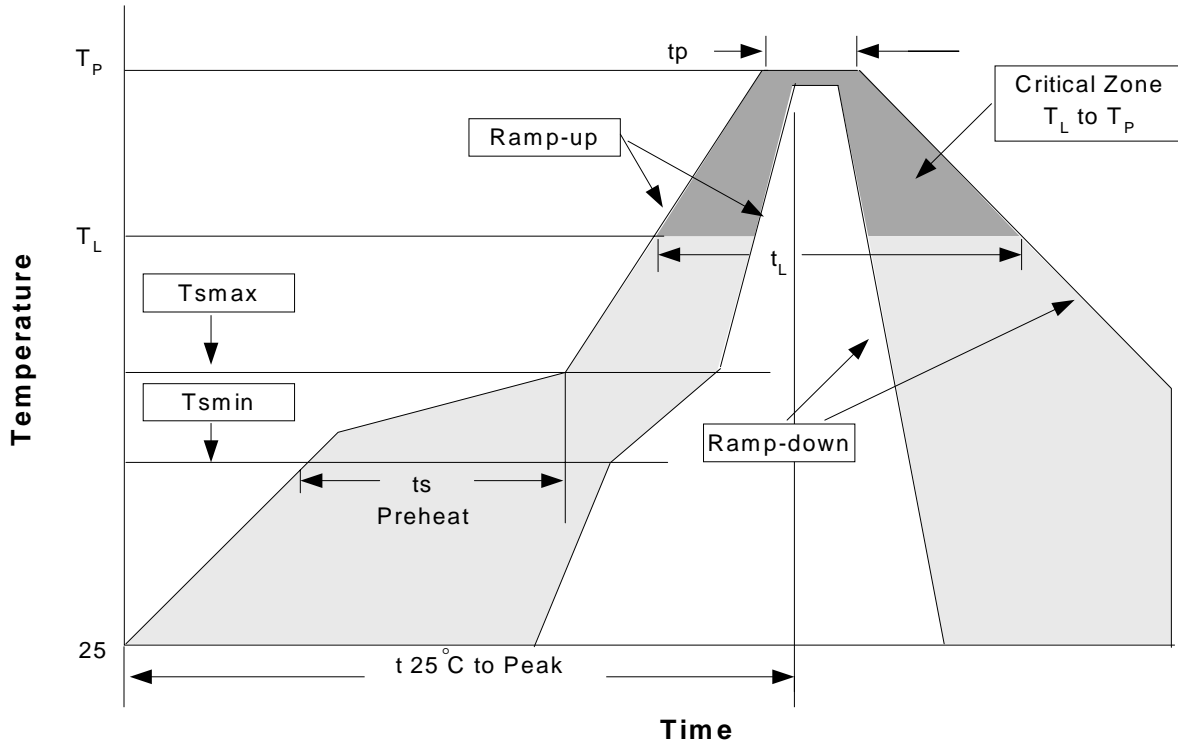


Dim	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A		1.2		0.047
A1	0.00	0.15	0.000	0.006
A2	0.80	1.05	0.031	0.041
b	0.19	0.30	0.007	0.012
D	2.9	3.1	0.114	0.122
e	0.65 BSC		0.026 BSC	
E	6.40 BSC		0.252 BSC	
E1	4.30	4.50	0.169	0.177
L	0.45	0.75	0.018	0.030
L1	1.0 REF		0.039 REF	
R	0.09		0.004	
R1	0.09		0.004	
S	0.2		0.008	
phi 1	0°	8°	0°	8°
phi 2	12° REF		12° REF	
phi 3	12° REF		12° REF	

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.

Reflow Condition (IR/Convection or VPR Reflow)



Classification Reflow Profiles

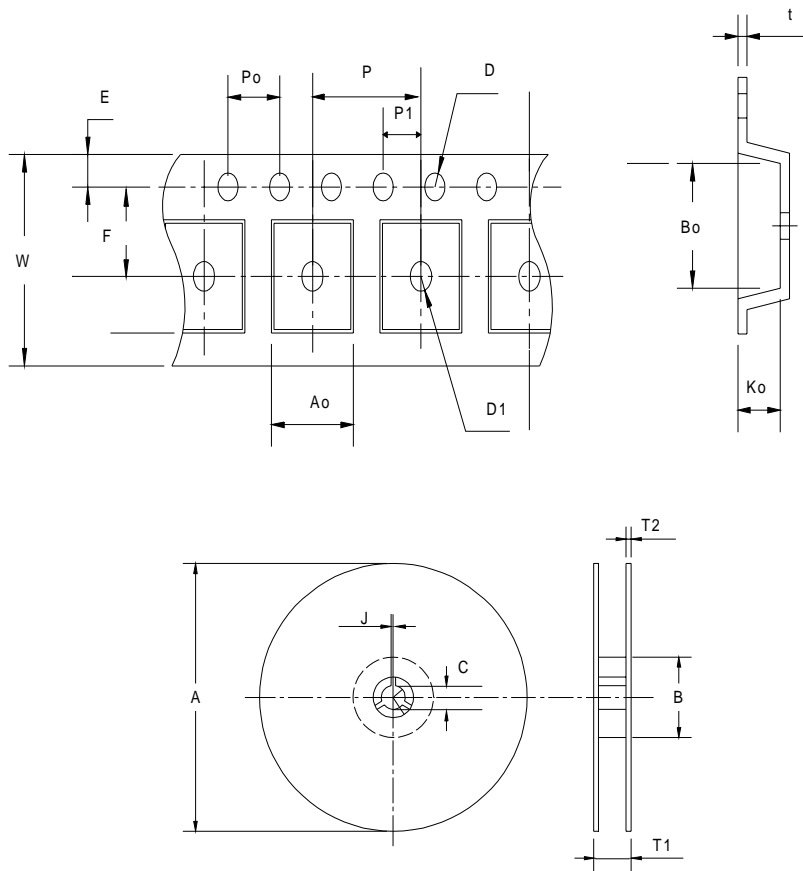
Profile Feature	Sn-Pb Eutectic Assembly		Pb-Free Assembly	
	Large Body	Small Body	Large Body	Small Body
Average ramp-up rate (T _L to T _P)	3°C/second max.		3°C/second max.	
Preheat				
- Temperature Min (T _{smin})	100°C		150°C	
- Temperature Mix (T _{smax})	150°C		200°C	
- Time (min to max)(t _s)	60-120 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
SOP-8	330±1	62 ± 1.5	12.75 +0.15	2 + 0.5	12.4 +0.2	2± 0.2	12 + 0.3 - 0.1	8± 0.1	1.75± 0.1
	F	D	D1	Po	P1	Ao	Bo	Ko	t
	5.5 ± 0.1	1.55 ±0.1	1.55+0.25	4.0 ± 0.1	2.0 ± 0.1	6.4 ± 0.1	5.2± 0.1	2.1± 0.1	0.3±0.013
Application	A	B	C	J	T1	T2	W	P	E
TSSOP-8	330 ± 1	62 +1.5	12.75+ 0.15	2 + 0.5	12.4 ± 0.2	2 ± 0.2	12± 0.3	8± 0.1	1.75±0.1
	F	D	D1	Po	P1	Ao	Bo	Ko	t
	5.5 ± 0.1	1.5 + 0.1	1.5 + 0.1	4.0 ± 0.1	2.0 ± 0.1	7.0 ± 0.1	3.6 ± 0.3	1.6 ± 0.1	.3±0.013

(mm)

Cover Tape Dimensions

Application	Carrier Width	Cover Tape Width	Devices Per Reel
SOP- 8	12	9.3	2500
TSSOP- 8	12	9.3	2500

Customer Service

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