

EST7610V/VS

3-Channel PC Power Supply Supervisors



Description

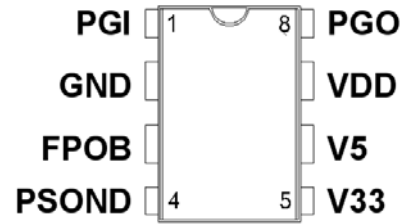
The EST7610V is a PC switching power supply monitor with minimum external components. It provides protection circuits, power-good output (PGO), fault protection output (FPOB) and on/off control (PSONB).

The over-voltage protection (OVP) and under-voltage protection (UVP) monitors 3.3V, 5V and 12V (12V supplies voltage detects via VDD pin). When an OV or UV condition is detected, the fault protection output (FPOB) is latched high and the power good output (PGO) go low. PSONB from low to high resets the latch. When OV, UV and PGI are all right, the power good output (PGO) will be issue. A built-in 4ms delay and 38ms debounce for PSONB turn off FPOB.

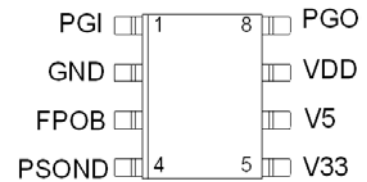
Features

- Over-voltage protection (OVP) for 3.3V, 5V and 12V supplies
- Under-voltage protection (UVP) for 3.3V, 5V and 12V supplies
- Fault protection output (FPOB) with open drain output
- Power good output (PGO) with open drain output
- 300ms PGO delay time
- 38ms PSONB debounce time
- 35us OVP debounce time
- 73us UVP debounce time
- 73us PGI debounce time
- 4ms FPOB turn off delay time
- 75ms UVP delay time

Pin Assignments



DIP-8L

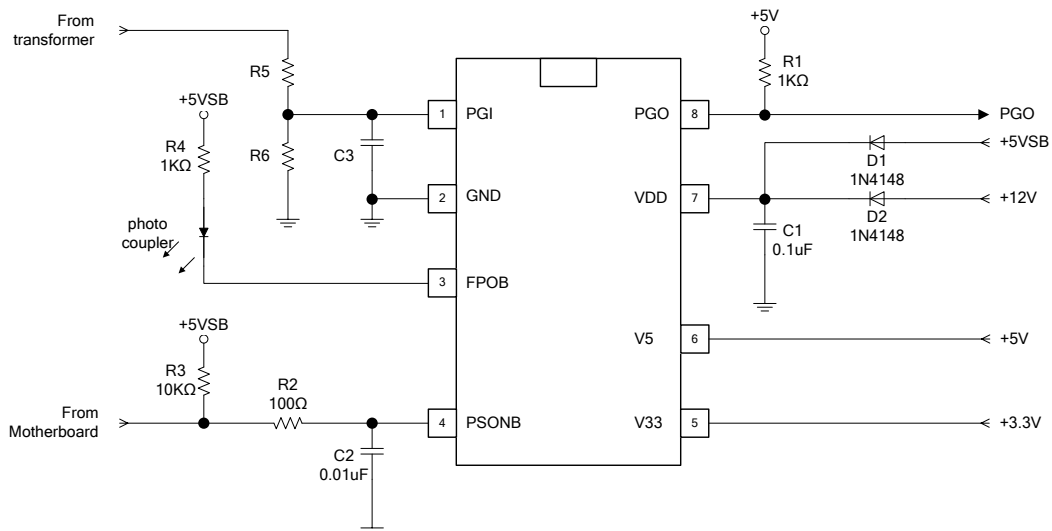


SOP-8L

Ordering Information

Order Number	Package Type	Packing	Top Marking
EST7610V	DIP-8 (RoHS)	Tube	EST.7610V
EST7610VS	SOP-8 (RoHS)	Tube	EST.7610VS
EST7610VSR	SOP-8 (RoHS)	Tape & Reel	EST.7610VS

Typical Application Circuit



EST7610V/VS

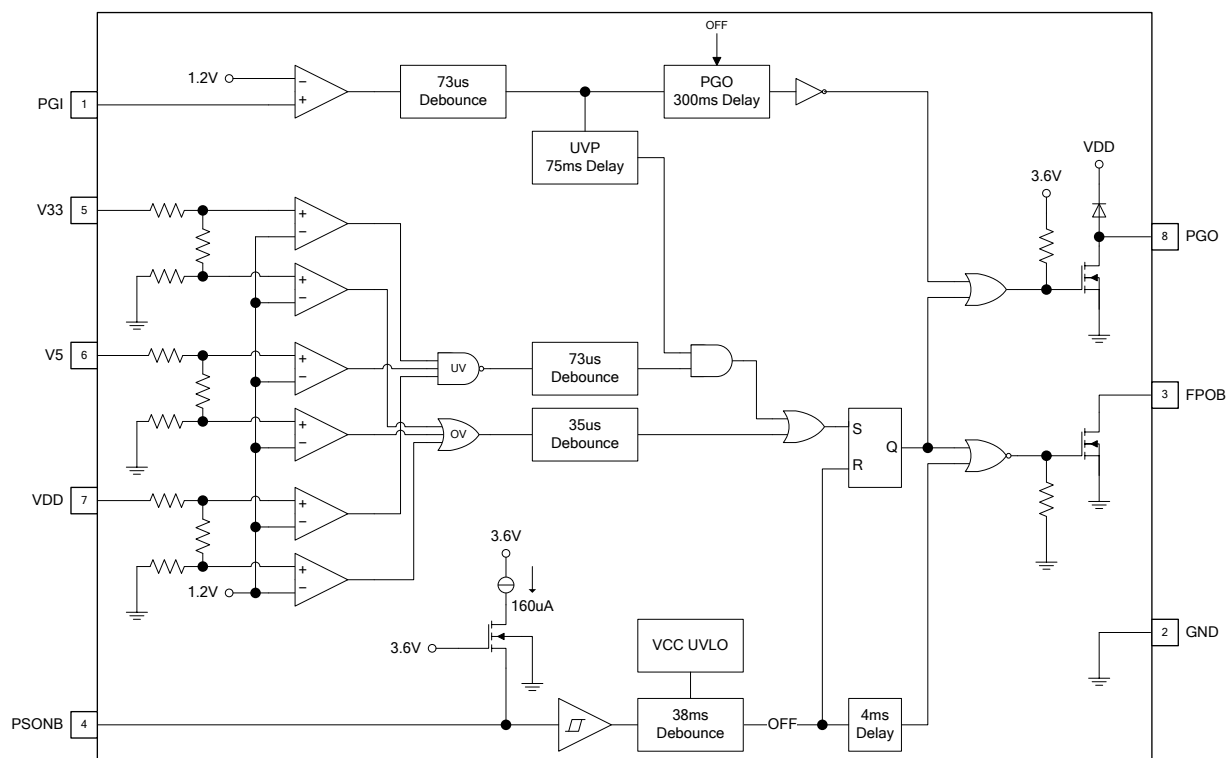
3-Channel PC Power Supply Supervisors



Pin Description

Pin	Symbol	Function
1	PGI	AC power good input pin.
2	GND	Power supply ground.
3	FPOB	Open drain output of the fault protection.
4	PSONB	ON/OFF control input pin.
5	V33	3.3V input pin for OVP and UVP.
6	V5	5V input pin for OVP and UVP.
7	VDD	Power supply. +12V input pin for OVP and UVP.
8	PGO	Open drain output of power good signal.

Block Diagram



EST7610V/VS

3-Channel PC Power Supply Supervisors



Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Supply Voltage	VDD	-0.3	16	V
Supply Voltage Rising Time		1	-	ms
Input Voltage	PGI, PSONB, V5, V33	-0.3	7	V
Output Voltage	PGO, FPOB	-0.3	16	V
Operating Temperature Range		-40	85	oC
Storage Temperature Range		-65	150	oC
Soldering Temperature		-	260	oC

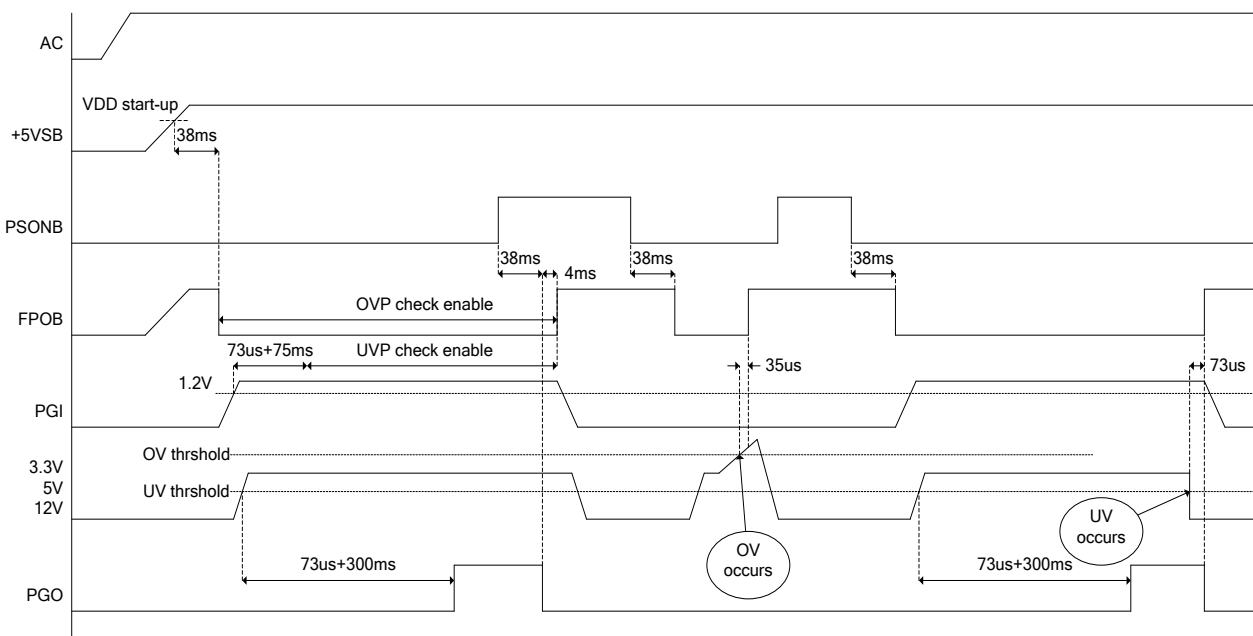
Note: Stresses above those listed may cause permanent damage to the devices.

Electrical Characteristics (T_A=25°C, VDD=5V, unless otherwise noted.)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
VDD Power Supply						
VDD Operating Voltage	VDD		4	5	15	V
IDD Supply Current	I _{DD}	PSONB=5V	-	-	1	mA
VDD Start-up Voltage			-	3.4	3.6	V
VDD Under Voltage Lockout after Start-up			2.8	3.0	-	V
Over Voltage and Under Voltage Detection						
Over Voltage Threshold	V33		3.7	3.8	3.9	V
	V5		5.7	5.85	6.0	V
	VDD		12.9	13.25	13.6	V
Under Voltage Threshold	V33		2.55	2.69	2.83	V
	V5		4.1	4.3	4.47	V
	VDD		8.8	9.3	9.8	V
PGI Threshold Voltage	PGI 1		1.16	1.20	1.24	V
Temperature Coefficient of Voltage	TCV		-0.02	-	0.02	% / °C
Output						
Low Level Output Voltage	V _{OL} (FPOB)	I _{SINK} =20mA	-	-	0.4	V
	V _{OL} (PGO)	I _{SINK} =20mA	-	-	0.4	V
Leakage Current of FPOB and PGO	I _{LKG}		-1	-	1	uA
PSONB Control						
High Level Input Voltage	V _{IH}		1.8	-	-	V
Low Level Input Voltage	V _{IL}		-	-	1.0	V
Pull-up Current			-	160	-	uA
Timing						
PSONB Debounce Time	t _{db1}		24	38	52	mS
OVP Debounce Time	t _{db2}		20	35	50	uS
UVP Debounce Time	t _{db3}		47	73	100	uS
PGI Debounce Time	t _{db4}		47	73	100	uS
PGO Delay Time	t _{delay1}		200	300	400	mS
FPOB Turn-off Time (PGO to FPOB)	t _{delay2}		2	4	6	mS
UVP Enable Delay Time	t _{delay3-1}	PGI < PGI2	Disable UVP check			
	t _{delay3-2}	PGI > PGI2	49	75	100	mS

Timing Diagram

Fig.1 Normal → OVP → UVP



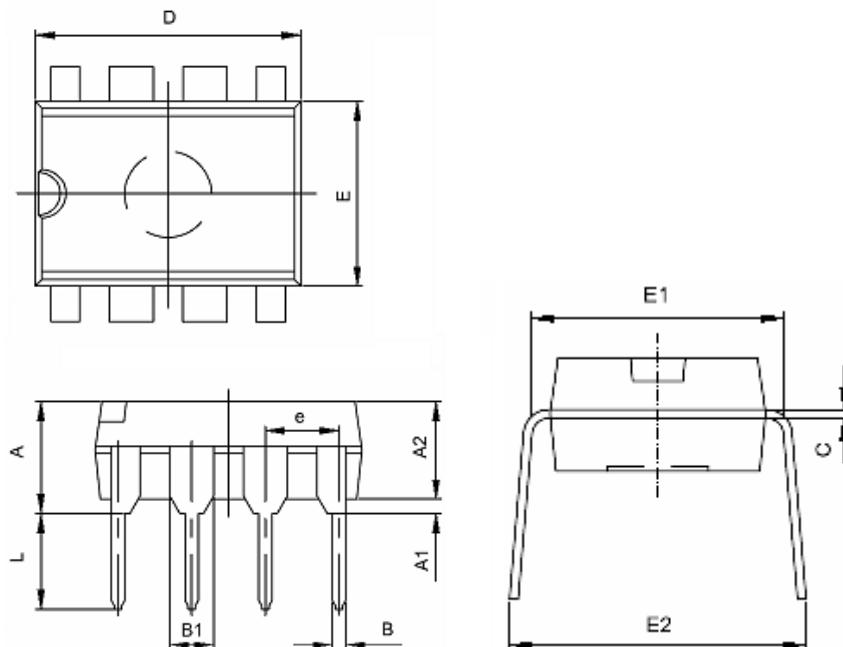
EST7610V/VS

3-Channel PC Power Supply Supervisors



PACKAGING INFORMATION

DIP-8 Package



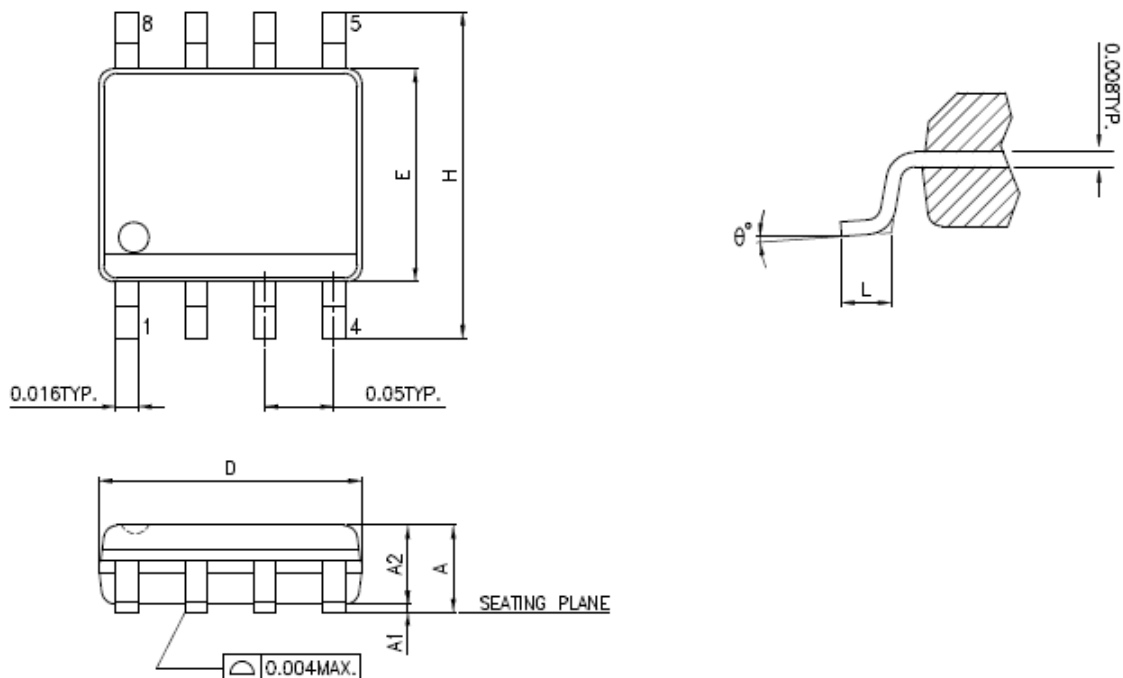
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.710	4.310	0.146	0.170
A1	0.510		0.020	
A2	3.200	3.600	0.126	0.142
B	0.360	0.560	0.014	0.022
B1	1.524(TYP)		0.060(TYP)	
C	0.204	0.360	0.008	0.014
D	9.000	9.400	0.354	0.370
E	6.200	6.600	0.244	0.260
E1	7.620(TYP)		0.300(TYP)	
e	2.540(TYP)		0.100(TYP)	
L	3.000	3.600	0.118	0.142
E2	8.200	9.400	0.323	0.370

EST7610V/VS

3-Channel PC Power Supply Supervisors



SOP-8 Package (mm)



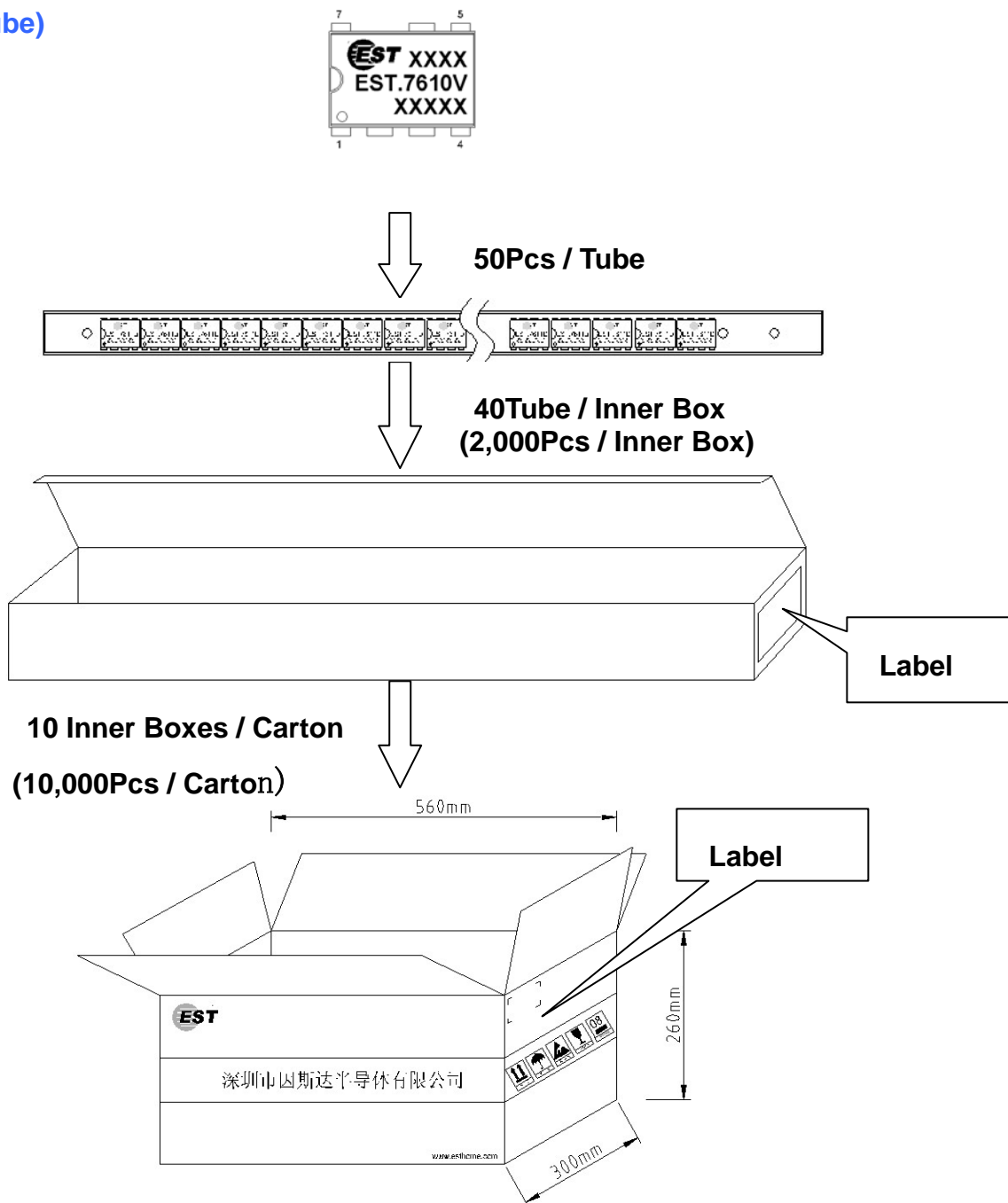
Symbols	Dimensions In Inches			Dimensions In millimeters		
	MIN.	NOR.	MAX.	MIN.	NOR.	MAX.
A	0.050	0.061	0.072	1.270	1.549	1.829
A1	0.000	-----	0.010	0.000	-----	0.254
A2	-----	-----	0.062	-----	-----	1.575
D	0.185	0.193	0.200	4.699	4.902	5.080
E	0.147	0.154	0.160	3.734	3.912	4.064
H	0.225	0.237	0.249	5.715	6.020	6.325
L	0.013	0.033	0.053	0.330	0.838	1.346
θ	0°	4°	8°	0°	4°	8°

EST7610V/VS 3-Channel PC Power Supply Supervisors



Packing Information :

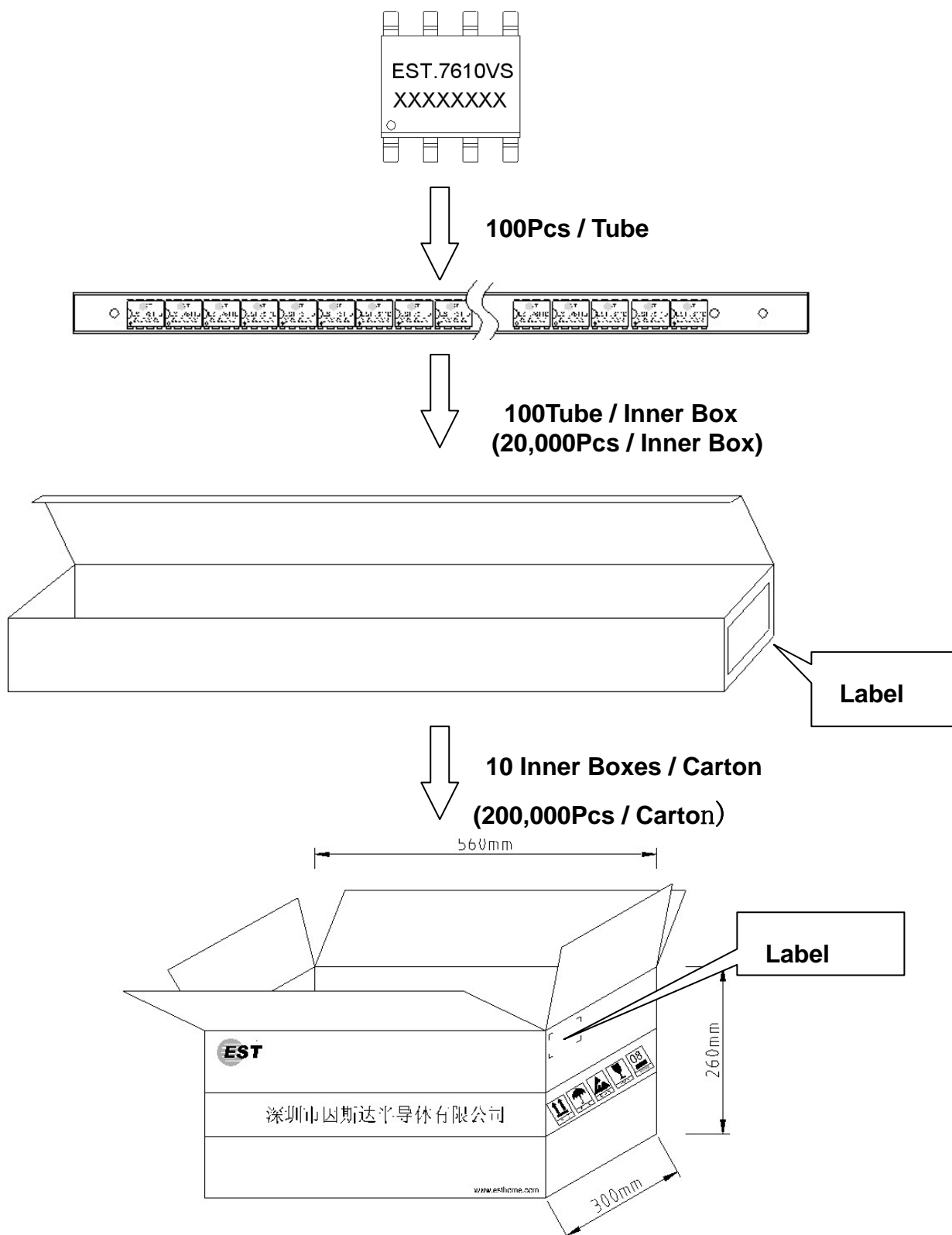
★DIP-8: (Tube)



EST7610V/VS 3-Channel PC Power Supply Supervisors



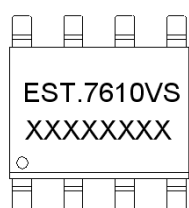
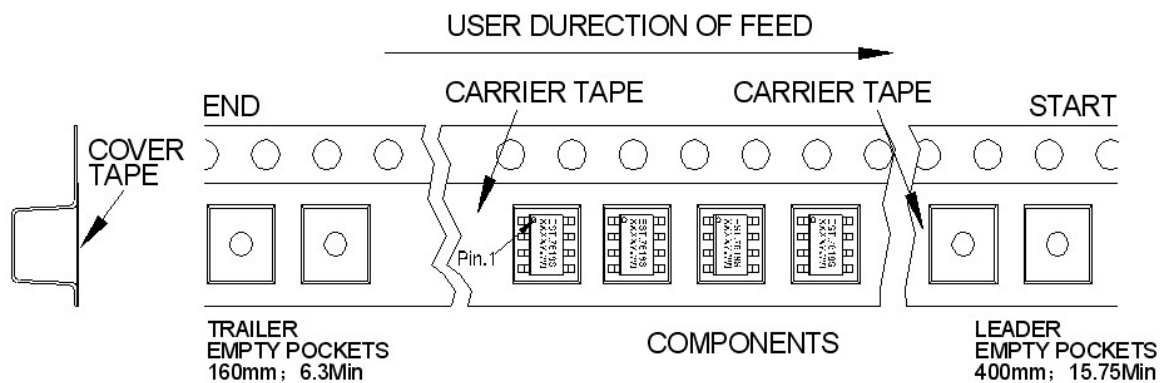
★SOP-8: (Tube)



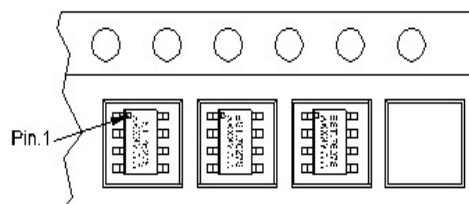
EST7610V/VS 3-Channel PC Power Supply Supervisors



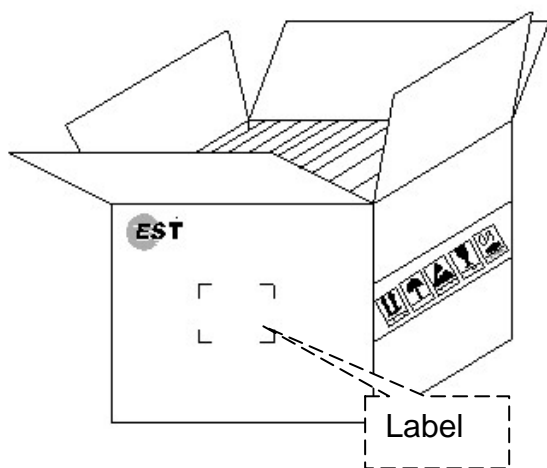
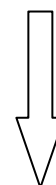
Shipping packing:
★SOP-8:(tape & Reel)



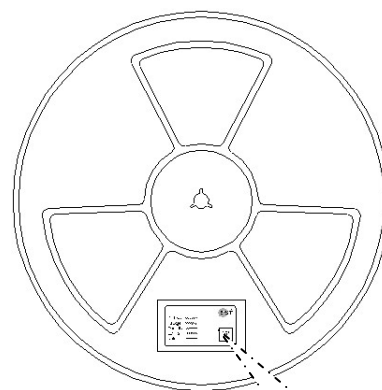
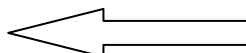
1Pc / device



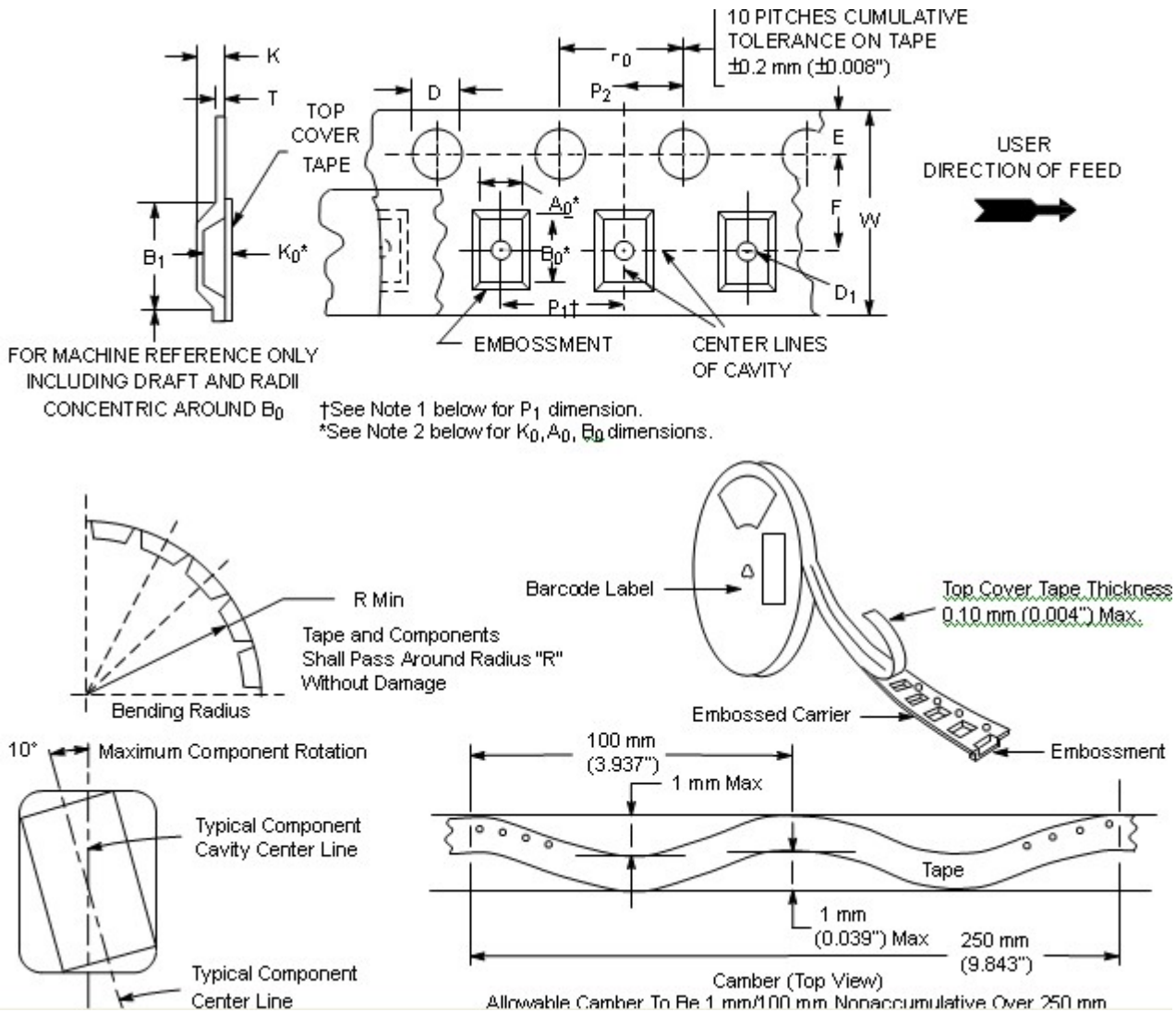
2500 devices / Reel



12 Reel / Carton
(30,000Pcs / Carton)



Embossed Tape and Reel Data Carrier Tape Specifications



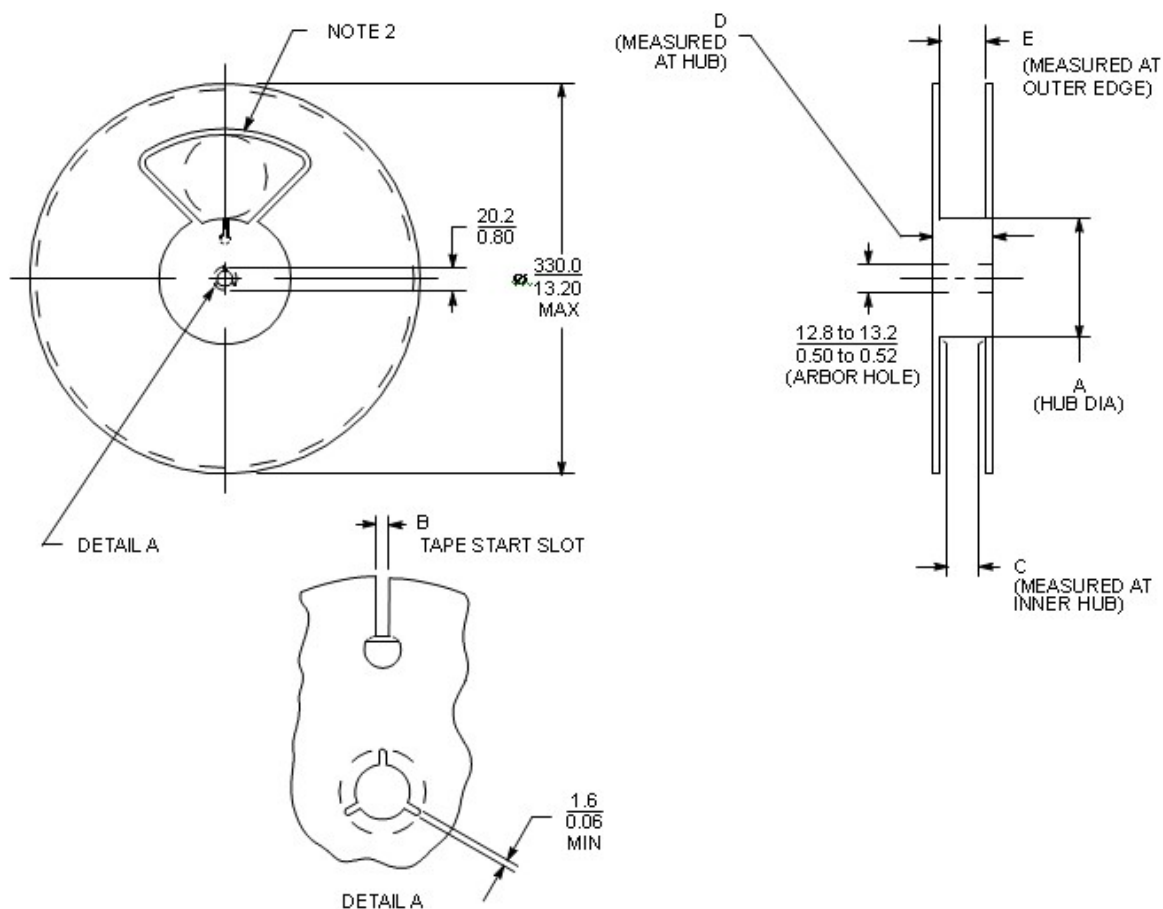
DIMENSIONS

Tape	B_1 Max (Note 1)	D	D_1	E	F	K	P_0	P_2	R Min	T Max	W Max		
8 mm	4.55 mm (0.1793)	1.5 + 0.1 mm - 0.0 (0.059 + 0.0043 - 0.0)	1.0 Min (0.0393) or 0.5 mm Min (0.0203)	1.75 ± 0.1 mm (0.069 ± 0.0043)	3.5 ± 0.05 mm (0.138 ± 0.0023)	2.4 mm Max (0.0943)	4.0 ± 0.1 mm (0.157 ± 0.0043)	2.0 ± 0.1 mm (0.079 ± 0.0023)	25 mm (0.983)	0.6 mm (0.0243)	8.3 mm (0.3273)		
12 mm	8.2 mm (0.3233)		1.5 mm Min (0.0603)								5.5 ± 0.05 mm (0.217 ± 0.0023)	6.4 mm Max (0.2523)	12 ± 0.30 mm (0.470 ± 0.0123)
16 mm	12.1 mm (0.4763)		7.5 ± 0.10 mm (0.295 ± 0.0043)								7.9 mm Max (0.3113)	16.3 mm (0.6423)	
			11.5 ± 0.1 mm (0.453 ± 0.0043)								11.9 mm Max (0.4683)	24.3 mm (0.9573)	

EST7610V/VS 3-Channel PC Power Supply Supervisors



Reel Dimensions



Reel	Tape	A		B		C		D	E
		Min	Max	Min	Max	Min	Max		
178.0 (7.01)	16.0 (0.63)		50.0 (1.97)	6.5 (0.26)	7.5 (0.30)	16.4 (0.65)	18.4 (0.72)	22.4 (0.88)	19.4 (0.76)
330.0 (12.99)	12.0 (0.47)	178.0 (7.01)		4.5 (0.18)	5.5 (0.22)	12.4 (0.49)	14.4 (0.57)	18.4 (0.72)	15.4 (0.61)
330.0 (12.99)	56.0 (2.20)	150.0 (5.91)		10.0 (0.39)	11.0 (0.43)	56.4 (2.22)	58.4 (2.30)	62.4 (2.46)	59.4 (2.34)
330.0 (12.99)	44.0 (1.73)	100.0 (3.94)		10.0 (0.39)	11.0 (0.43)	44.4 (1.75)	46.4 (1.83)	62.4 (2.46)	47.4 (1.87)
330.0 (12.99)	32.0 (1.26)	100.0 (3.94)		10.0 (0.39)	11.0 (0.43)	32.4 (1.28)	34.4 (1.35)	38.4 (1.51)	35.4 (1.39)
330.0 (12.99)	24.0 (0.94)	60.0 (2.36)		9.5 (0.37)	10.5 (0.41)	24.4 (0.96)	26.4 (1.04)	30.4 (1.51)	27.4 (1.08)
330.0 (12.99)	16.0 (0.63)			6.5 (0.26)	7.5 (0.30)	16.4 (0.65)	18.4 (0.72)	22.4 (0.88)	19.4 (0.76)
330.0 (12.99)	12.0 (0.47)			4.5 (0.18)	5.5 (0.22)	12.4 (0.49)	14.4 (0.57)	18.4 (0.72)	15.4 (0.61)
330.0 (12.99)	8.0 (0.31)	50.0 (1.97)		2.5 (0.10)	3.5 (0.14)	8.4 (0.33)	9.9 (0.39)	14.4 (0.57)	10.9 (0.43)
178.0 (7.01)	12.0 (0.47)	50.0 (1.97)		4.5 (0.18)	5.5 (0.22)	12.4 (0.49)	14.4 (0.57)	18.4 (0.72)	15.4 (0.61)
178.0 (7.00)	8.0 (0.31)	50.0 (1.97)		2.5 (0.10)	3.5 (0.14)	8.4 (0.33)	9.9 (0.39)	14.4 (0.47)	10.9 (0.43)
330.0 (12.99)	8.0 (0.31)	50.0 (1.97)		4.0 (0.16)	5.0 (0.20)	8.4 (0.33)	9.9 (0.39)	14.4 (0.57)	10.9 (0.43)
178.0 (7.00)	8.0 (0.31)	50.0 (1.97)		4.0 (0.16)	5.0 (0.20)	8.4 (0.33)	9.9 (0.39)	14.4 (0.57)	10.9 (0.43)