EST.5181A
Electronic Marker for USB Type-C Passive Cable

GENERAL DESCRIPTION

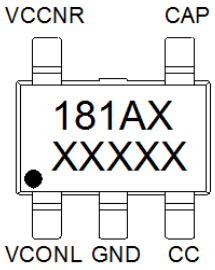
All USB type-C cables that are either full-featured or are rated at more than 3 A current are Electronically Marked Cables.

EST5181A, E-Marker for USB Type-C cables, is designed for ease of manufacturing and will enable upcoming USB Type-C cables to report properties such as maximum signal rate and allowable current, in addition to manufacturer and USB-IF Certification information.

EST5181A is compliant to passive USB Type-C Cables and connecters specification 1.1 and USB power delivery (PD) specification 2.0. It supports programming over CC line using structured Vendor Defined Messages (VDM). EST5181 supports flash to store cable Vendor Defined Data Object (VDO), certification status VDO, product VDO, and so on.

PIN CONFIGURATION

(Top View)



SOT23-5

FEATURE

- Compliant to USB Power Delivery 2.0 Specification.
- Supports Programming over CC Line using structured Vendor Defined Messages.
- Extremely Low BOM Cost: Diodes, Ra are all integrated On-Di
- Supports flash to store Cable VDO, certification Status VDO, Product VDO, etc .
- Passive USB Type-C Cables such as Full-Featured C-to-C cables.
- Optimized for Low Power consumption.
- SOT23-5 features for easy manufacturing.

APPLICATIONS

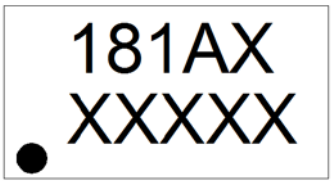
All cables that are either USB 3.1 and/or are rated at more than 3A current.

PACKAGING AND ORDERING INFORMATION

Part Number	Package Type	Production Flow
EST5181A	SOT23- 5 pin	-40°C to +85°C

TOP MARKING SPECIFICATION

EST5181A top marking is printed on 5-pins SOT23 package. The version identification is shown as the bold red one character (**"X"**). Please refer to below table for detail



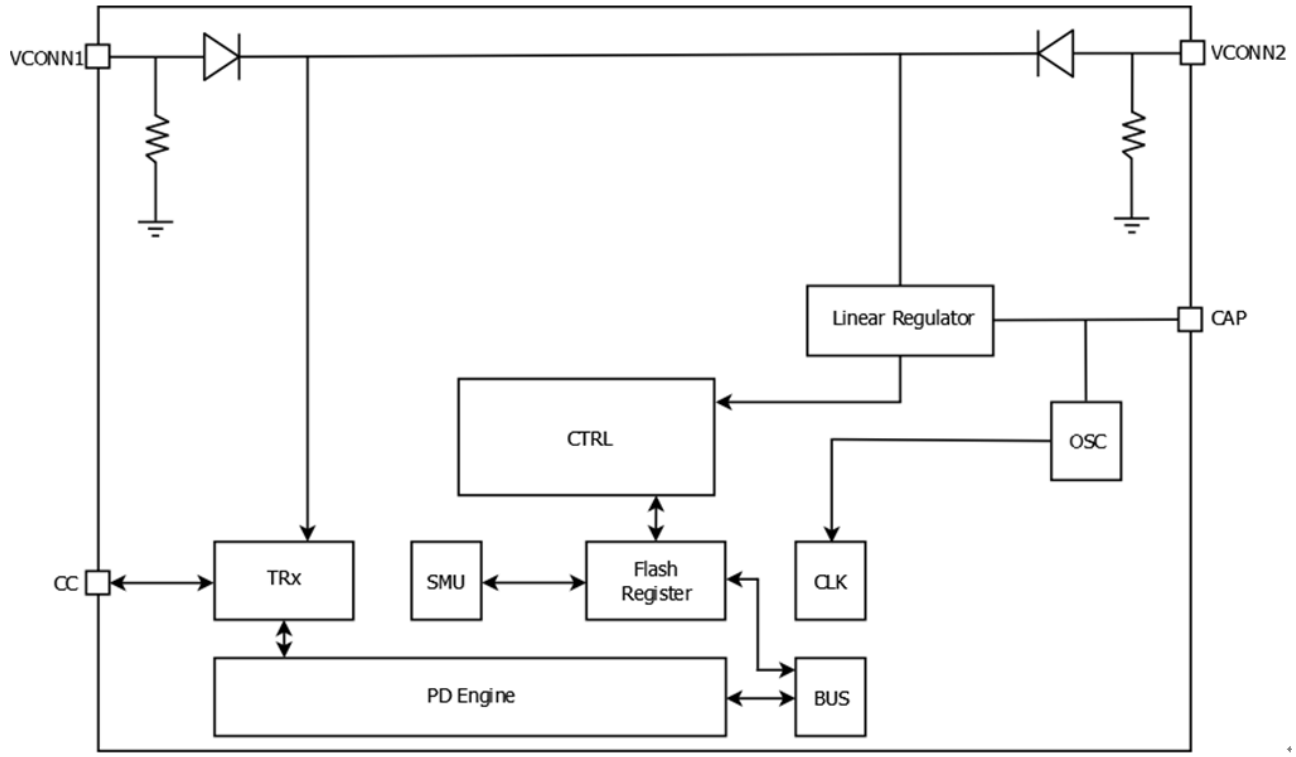
SOT23-5

1st Line: Device Name + Package Code (A) + **IC Version (X)**
where "A" means version A, B means version B…etc.

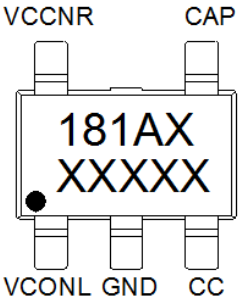
2nd Line: Trace Code

●: Pin 1 Identifier

BLOCK DIAGRAM



PIN DESCRIPTION



I/O - TTL level bi-directional pin with schmitt trigger.
AO - Analog Output pin
P - Power.

Pin No	Pin Name	Type	Description
1	VCONL	P	VCONN Power , typical 5V
2	GND	GND	Ground
3	CC	I/O	Configuration channel communication Line.
4	CAP	AO	Internal Power 3.3V, connect this pin with 0.1uF capacitor directly to GND.
5	VCONR	P	VCONN Power , typical 5V

ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings

PARAMETER	SYMBOL	RATINGS	UNIT
VCONN1, VCONN2, CC Pin Voltage		-0.3 to 5.5	V
CAP Pin Voltage		-0.3~3.6	V
Maximum junction temperature	T_j	+150	°C
Maximum storage temperature	T_{STO}	-65 ~ +150	°C
Operating Temperature*		-40 to +85	°C
Maximum lead temperature		+260	°C
Moisture Sensitivity Level	MSL	LEVEL 3	
ESD Protection level(Human Body Model)	V_{ESD}	±2	KV

Note: If ICs are stressed beyond the limits listed in the “absolute maximum ratings”, they may be permanently destroyed. These are stress ratings only and functional operation of the device at these or any other condition beyond those indicated under “recommended operating conditions” is not implied. Exposure to absolute maximum rated conditions for extended periods may affect device reliability.

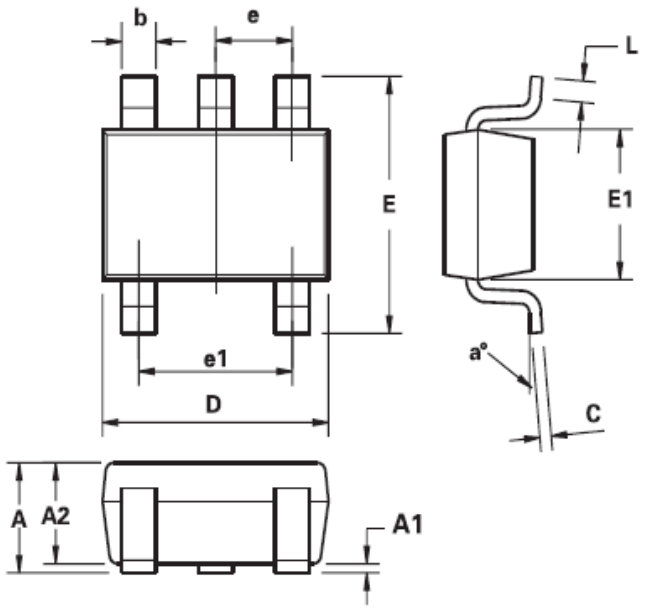
*Design Guarantee: The device is guaranteed to meet the specifications from 0 over to 70 C. Specificatio the –40 C to 85 C oper statistical process controls.

DC and AC electrical characteristics (VCONN=5V, TA = 25 °C)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
POWER SUPPLY						
Operating Power Supply	VCONN		4.5	5	5.5	V
Supply Current (integrated Ra)	I_{CC}	VCONN =5V		5		mA
Voltage						
Operating Voltage	CC		1.05		1.125	V

*Design Guarantee: The device is guaranteed to meet the specifications from 0°C to 70°C. Specifications over the –40°C to 85°C operating temperature range are assured by design, characterization and correlation with the statistical process controls

PACKAGE DIMENSIONS
SOT23-5



DIM	Millimeters	
	Min.	Max.
A	0.90	1.45
A1	0.00	0.15
A2	0.90	1.30
b	0.20	0.50
C	0.09	0.26
D	2.70	3.10
E	2.20	3.20
E1	1.30	1.80
e	0.95 REF	
e1	1.90 REF	
L	0.10	0.60
a°	0°	30°