

36V Over-Voltage-Protector with 30mohm On Resistance

DESCRIPTION

ETA7028 is a low side Over-Voltage-Protection (OVP) IC with only 30mohm switch resistance. It employs a low side protection topology which ensure a very low on resistance together with a high protection voltage.

ETA7028 is consist of a voltage comparator, a switch driver and a 30mohm power NMOS.

ETA7028 is available in SOT23-6 package.

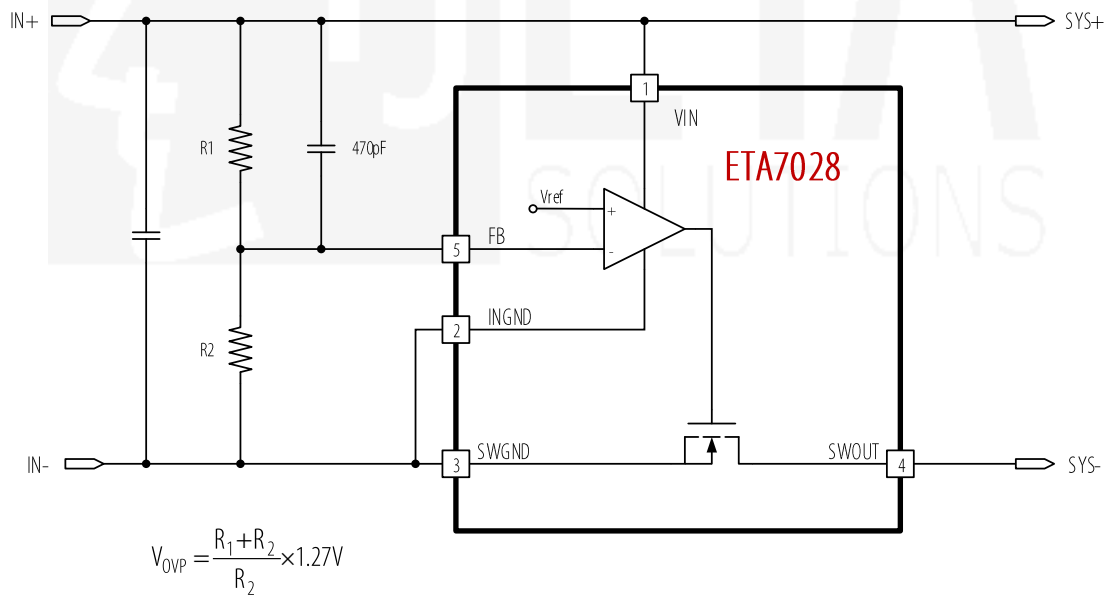
FEATURES

- ◆ Over voltage protection up to 36V
- ◆ 30mohm switch resistance
- ◆ Protection voltage adjustable
- ◆ Switch on speed adjustable

APPLICATIONS

- ◆ Tablet, MID
- ◆ Smart Phone
- ◆ Car camera
- ◆ Power bank

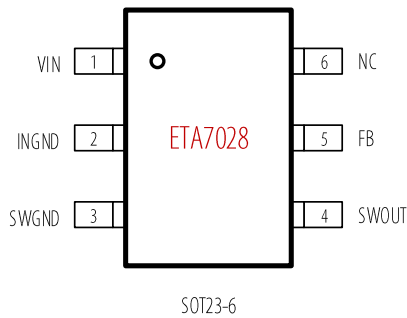
TYPICAL APPLICATION



ORDERING INFORMATION

PART No.	PACKAGE	TOP MARK	Pcs/Reel
ETA7028S2G	SOT23-6	GUYW	3000

PIN CONFIGURATION



ABSOLUTE MAXIMUM RATINGS

(Note: Exceeding these limits may damage the device. Exposure to absolute maximum rating conditions for long periods may affect device reliability.)

FB pin	15V
SWOUT, VIN pins.....	36V
Operating Temperature Range	-40°C to 85°C
Storage Temperature Range	-55°C to 150°C
Thermal Resistance	θ_{JC} θ_{JA}
SOT23-6.....	65.....195
Lead Temperature (Soldering, 10sec)	260°C
ESD HBM (Human Body Mode)	2KV
ESD MM (Machine Mode)	200V

PIN DESCRIPTION

PIN #	NAME	DESCRIPTION
1	VIN	The positive input terminal
2	INGND	The analog ground
3	SWGND	The ground of internal power switch
4	SWOUT	The output of internal power switch, connecting to the negative terminal of the system to be protected
5	FB	The feedback pin for setting over-voltage-protection level
6	NC	Not connected, leave this pin float

DC ELECTRICAL CHARACTERISTICS

($V_{IN} = 5V$, unless otherwise specified. Typical values are at $T_A = 25^\circ C$.)

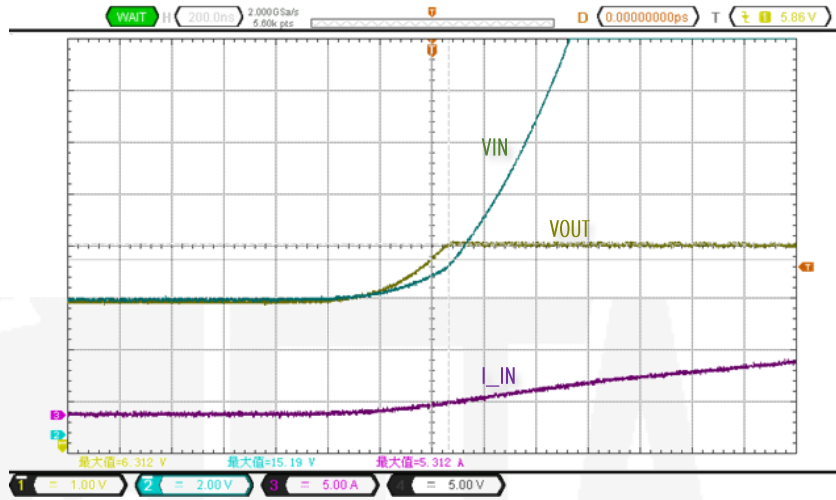
PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Input Range		3.6		36	V
V_{OVP} Range		3.6		15	V
Quiescent Current	$V_{in}=5V, V_{OVP}=6V, R1+R2 > 500K$		0.3	0.6	mA
FB voltage (V_{fb})	$V_{in}=5V$	1.21	1.27	1.33	V
FB input current	$V_{fb}=1.27V$		1.9	3	uA
Switch R_{dson}	$V_{in}=5V, I_{out}=1A$		30	40	m Ω
Switch Current	$V_{in}=5V$, Current from SWOUT to SWGND			4	A
SWOUT Leakage	$V_{swout} = 36V$, under OV protection condition		0.1	1	mA
OVP protection delay time	with 470pF from V_{in} to FB, OVP level=6.0V		70	100	ns
Switch on delay	Power on delay from V_{in} to V_{out}		30		us

AC ELECTRICAL CHACACTERISTICS

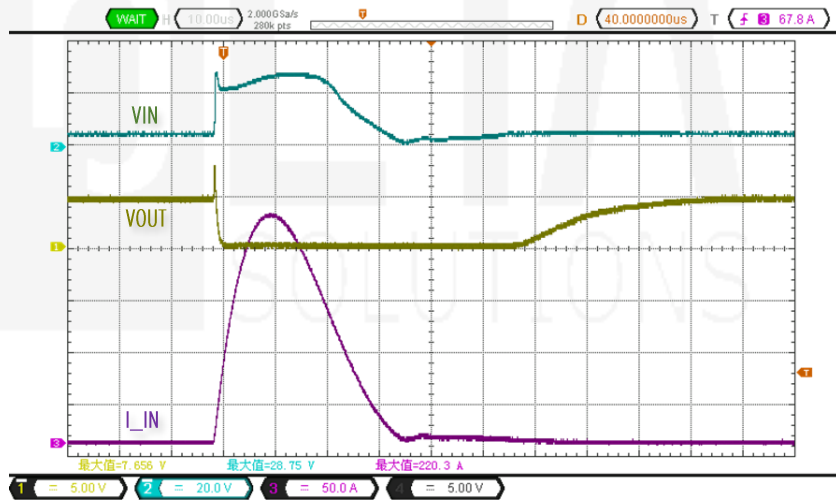
(V_{IN} = 5V, unless otherwise specified. Typical values are at T_A = 25°C.)

It is very crucial for an over-voltage-protection IC to turn off the switch as soon as possible after detecting a input voltage surge that trigger the protection level. Protection delay time (T_{off}) is defined as the time from over-voltage level triggered at input terminal to output voltage stop rising.

Turn off (protection) delay time
 Vin surge test
 T_{off} = 68ns

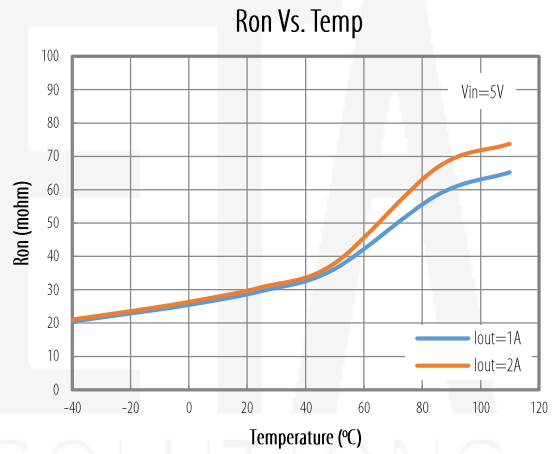
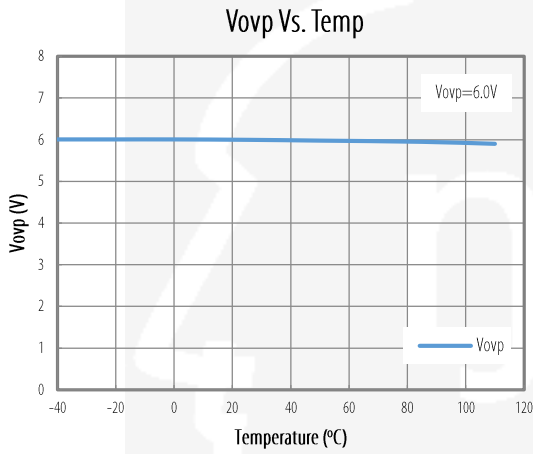
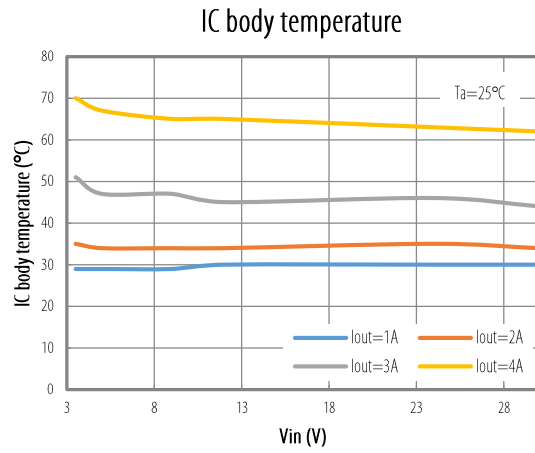
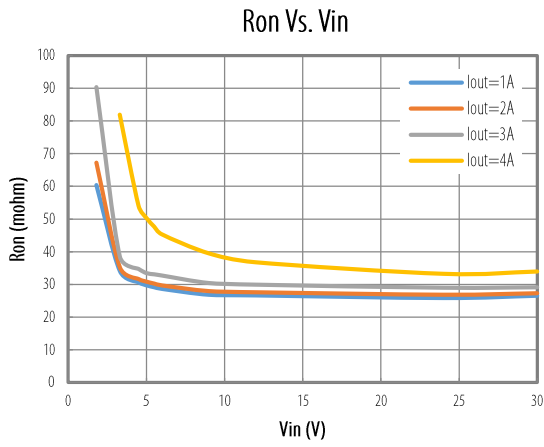


450V EOS test result with TVS



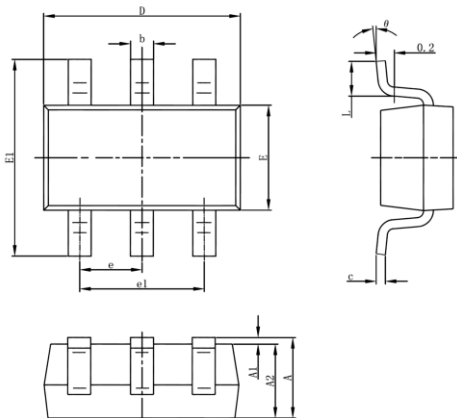
DC ELECTRICAL CHARACTERISTICS

($V_{IN} = 5V$, unless otherwise specified. Typical values are at $T_A = 25^\circ C$.)



PACKAGE OUTLINE

Package: SOT23-6



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°