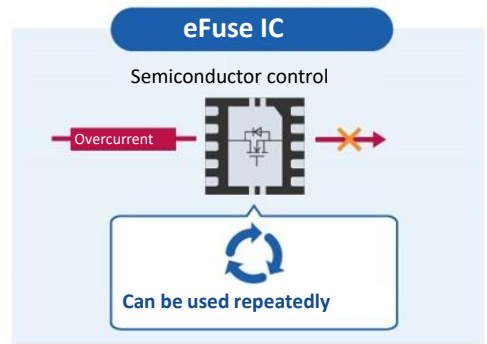
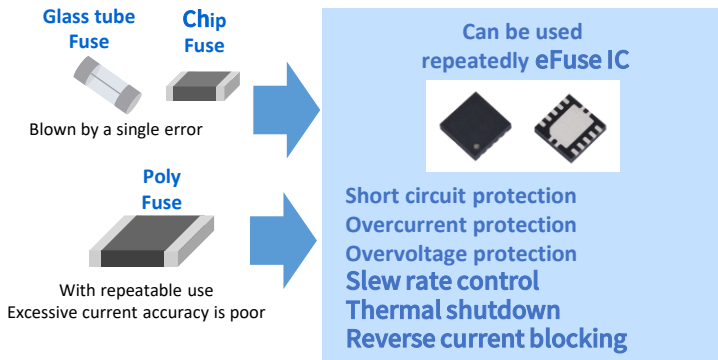


eFuse IC for robust power supply protection

Toshiba eFuse IC incorporates high-performance, high-accuracy protective functions in a single package, which contributes to shorter designing times and robust protection of power supply lines.

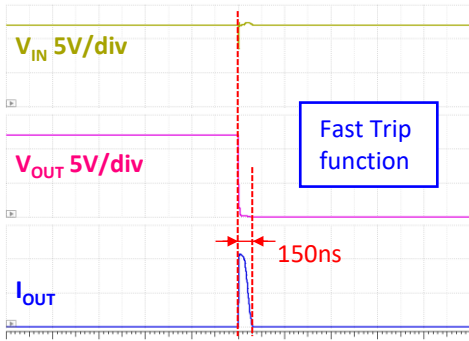
Outline of TOSHIBA eFuse IC

An eFuse IC is a semiconductor device with a fuse function designed to protect an electronic circuit from overcurrent conditions. The Toshiba eFuse IC has a lot of built-in protective functions and provide many advantages over physical fuses.



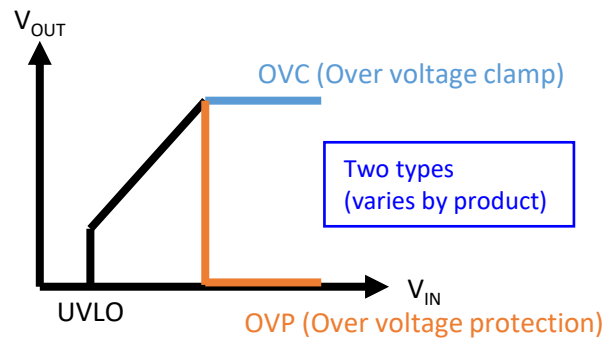
Main Protective Functions

Short circuit protection operation



Simulated waveform of TCKE8 series.

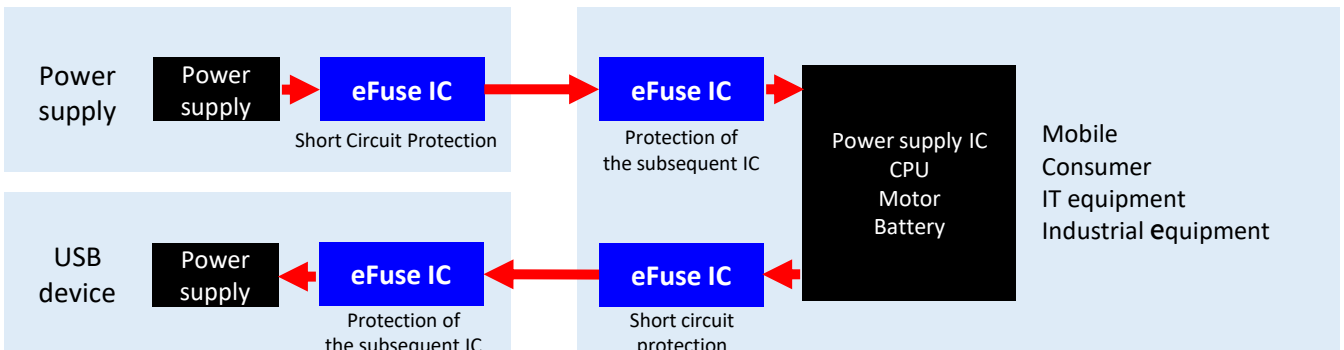
Overvoltage protection (OVC, OVP)



Application note [Click](#)

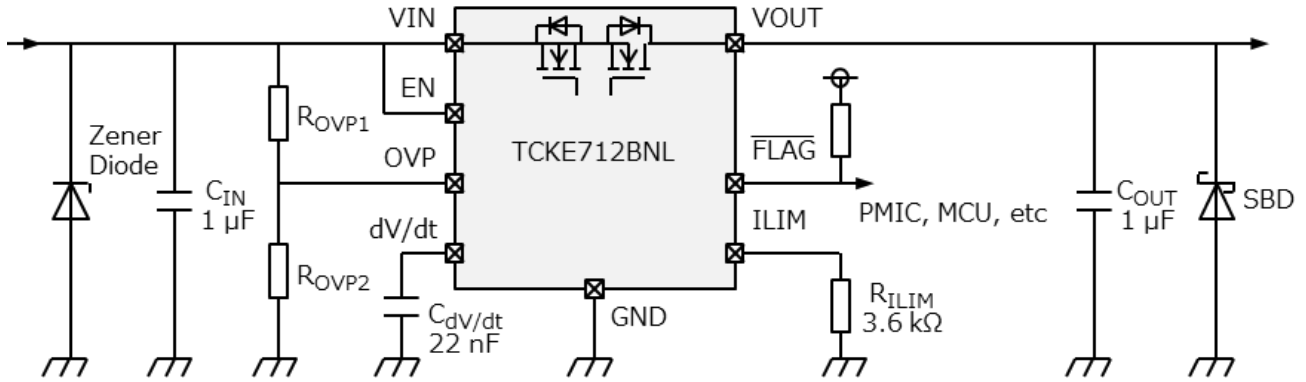
eFuse IC Applications diagram

It can be used for all applications requiring functions such as short circuit protection, overcurrent protection, overvoltage protection, slew rate control, reverse current blocking, and thermal shutdown.



Example of power supply line combining eFuse IC with Zener diode and Schottky Barrier Diodes(SBD)

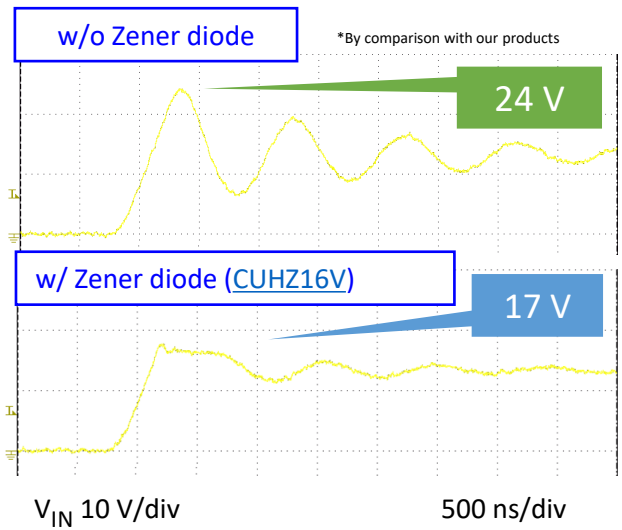
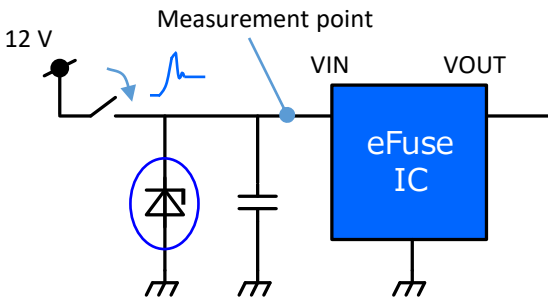
The eFuse IC has built-in overvoltage, overcurrent, and short circuit protection functions, but more robust power supply lines can be built by adding external components. If a Zener diode is connected between the input terminal and the GND terminal of eFuse IC, it provides a more robust protection against surges. In addition, the output may become a negative voltage due to the protective operation of eFuse IC, but the negative voltage can be reduced by connecting SBD.



NOTE :Select Zener diodes and SBDs considering the maximum rating of eFuse IC.

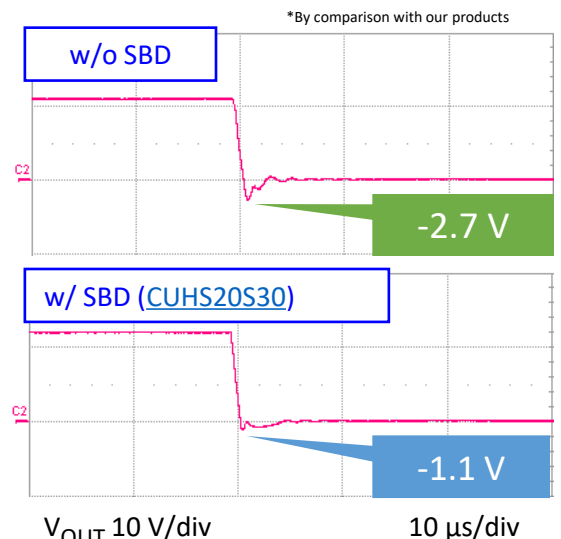
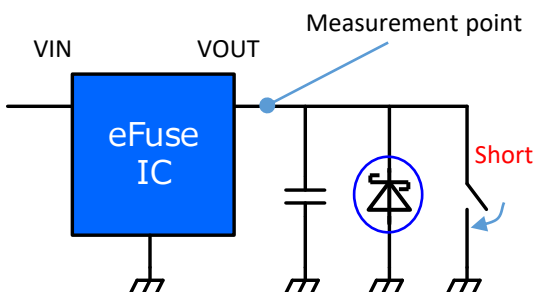
Hot swap protection with Zener diode

Overvoltage occurs when Hot swap. The Zener diodes can easily protect internal circuits.



Negative voltage protection with SBD

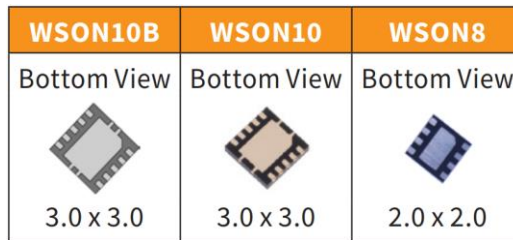
A large negative voltage occurs the output side when the current path is cut off. The SBD can reduce negative voltage.



•eFuse IC selection table

Product name	Package	Size (mm)	Electrical Characteristics /Switching Characteristics					Additional function										Certification		Purchase
			V _{IN} /V (Min)	V _{IN} /V (Max)	I _{OUT} /A (DC)	R _{ON} /mΩ (typ)	I _Q /mA (typ)	Control Active	SRC	OAD	RCB	OVC/OVP	OCL	TSD	Recovery	Extra	IEC 62368-1 G9			
TCKE800NA	WSON10B	3×3	4.4	18	5	28	0.49	High	Adjustable	Y	Option (OFF)	N	0.5A-5A Adjustable	Y	Auto-retry	-	Y	Buy Online		
TCKE805NA	WSON10B	3×3	4.4	18	5	28	0.46	High	Adjustable	Y	Option (OFF)	6.04V OVC	0.5A-5A Adjustable	Y	Auto-retry	-	Y	Buy Online		
TCKE812NA	WSON10B	3×3	4.4	18	5	28	0.49	High	Adjustable	Y	Option (OFF)	15.1V OVC	0.5A-5A Adjustable	Y	Auto-retry	-	Y	Buy Online		
TCKE800NL	WSON10B	3×3	4.4	18	5	28	0.49	High	Adjustable	Y	Option (OFF)	N	0.5A-5A Adjustable	Y	Latched	-	Y	Buy Online		
TCKE805NL	WSON10B	3×3	4.4	18	5	28	0.46	High	Adjustable	Y	Option (OFF)	6.04V OVC	0.5A-5A Adjustable	Y	Latched	-	Y	Buy Online		
TCKE812NL	WSON10B	3×3	4.4	18	5	28	0.49	High	Adjustable	Y	Option (OFF)	15.1V OVC	0.5A-5A Adjustable	Y	Latched	-	Y	Buy Online		
TCKE712BNL	WSON10	3×3	4.4	13.2	3.65	53	0.69	High	Adjustable	N	Y (OFF)	Adjustable OVP	0.51A-3.65A Adjustable	Y	Latched	FLAG	Y	Buy Online		
TCKE903NA	WSON8	2×2	2.7	23	4	34	0.18	High	Adjustable	Y	N	3.87V OVC	0.5A-4A Adjustable	Y	Auto-retry	FLAG	Under planning	Buy Online		
TCKE903NL	WSON8	2×2	2.7	23	4	34	0.18	High	Adjustable	Y	N	3.87V OVC	0.5A-4A Adjustable	Y	Latched	FLAG	Under planning	Buy Online		
TCKE905ANA	WSON8	2×2	2.7	23	4	34	0.18	High	Adjustable	Y	N	5.7V OVC	0.5A-4A Adjustable	Y	Auto-retry	FLAG	Under planning	Buy Online		
TCKE905NL	WSON8	2×2	2.7	23	4	34	0.18	High	Adjustable	Y	N	5.7V OVC	0.5A-4A Adjustable	Y	Latched	FLAG	Under planning	Buy Online		
TCKE912NA	WSON8	2×2	2.7	23	4	34	0.185	High	Adjustable	Y	N	13.7V OVC	0.5A-4A Adjustable	Y	Auto-retry	FLAG	Under planning	Buy Online		
TCKE912NL	WSON8	2×2	2.7	23	4	34	0.185	High	Adjustable	Y	N	13.7V OVC	0.5A-4A Adjustable	Y	Latched	FLAG	Under planning	Buy Online		
TCKE920NA	WSON8	2×2	2.7	23	4	34	0.19	High	Adjustable	Y	N	22.2V OVC	0.5A-4A Adjustable	Y	Auto-retry	FLAG	Under planning	Buy Online		
TCKE920NL	WSON8	2×2	2.7	23	4	34	0.19	High	Adjustable	Y	N	22.2V OVC	0.5A-4A Adjustable	Y	Latched	FLAG	Under planning	Buy Online		
TCKE903QNA	WSON8	2×2	3.0	23	4	34	0.18	High	Adjustable	Y	N	3.87V OVC	0.5A-4A Adjustable	Y	Auto-retry	QOD	Under planning	Buy Online		
TCKE905QNA	WSON8	2×2	3.0	23	4	34	0.18	High	Adjustable	Y	N	5.7V OVC	0.5A-4A Adjustable	Y	Auto-retry	QOD	Under planning	Buy Online		

SRC: Slew rate control, OAD: Output auto-discharge, RCB: Reverse current blocking, OVC: Overvoltage clamp, OVP: Overvoltage protection (shutdown), OCL: Overcurrent limit, TSD: Thermal shutdown, QOD: Quick output discharge



Related LINK

- [Introduction to eFuse IC Products](#)
- [Application note](#)
- [Frequently Asked Questions for eFuse IC \(FAQ\)](#)
- [Online distributor purchase, inventory search page](#)
- [Cross-reference search](#)
- [eFuse IC feature articles](#)
- [Introduction to Zener diode products](#)
- [Introduction to Schottky Barrier Diodes\(SBD\) products](#)



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