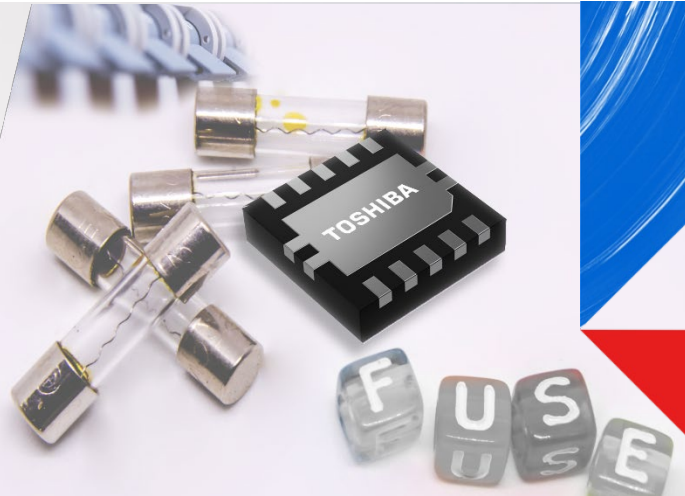


# Electronic Fuse IC



## Enhanced Safety and Protection

Conventional fuses are sacrificial devices, designed to fail and thereby break the flow of current when the circuit it is protecting enters some sort of failure mode. This break in current is designed to protect the end user from danger, primarily in the form of electrocution. Today's fuses are slow, inaccurate and conventional fuses need to be exchanged, once they have blown. Toshiba's new eFuse has eliminated all these disadvantages. The breakdown voltage and current level are showing a higher accuracy. The response time is several hundred thousand times faster than conventional fuses or poly-fuses and eFuses can be repeatedly used, so neither exchange nor repair is required.

## Applications

- Hot swapping
- Cordless power tool & cleaner
- Wireless charger
- Smart speaker & smart watch
- Thermostat
- Electrical shaver
- Surveillance camera
- Robot cleaner
- Solid State Drive
- Server

### Features

- Clamp voltage accuracy 7%
- Clamp current accuracy 11%
- Adjustable clamp current 0.5~5A
- Low  $R_{on}$  28m $\Omega$  (typ.)
- Less than 200ns response time
- Adjustable slew-rate control
- Latch type or auto-retry type
- Built-in driver for external MOSFET to implement reverse current blocking
- Thermal shut-down
- IEC62368 certified
- Small package

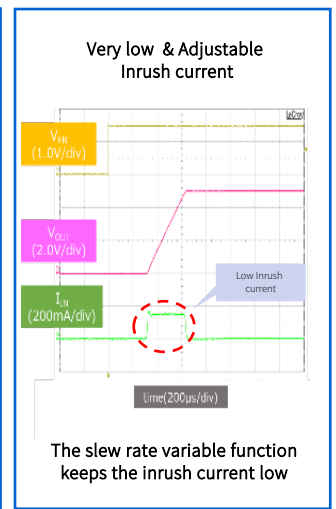
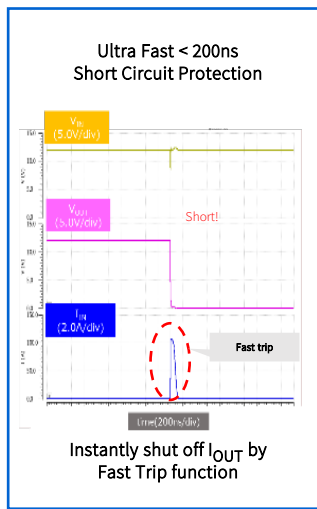
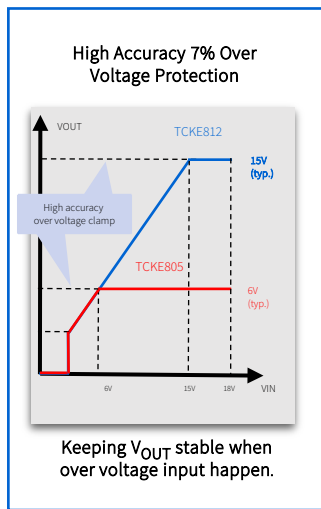
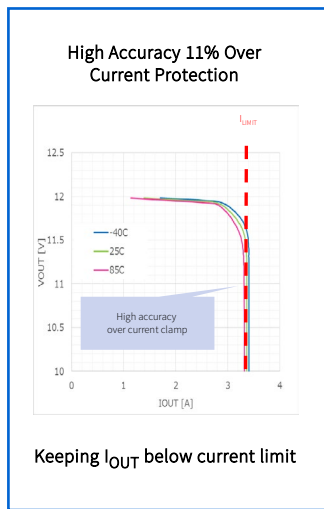
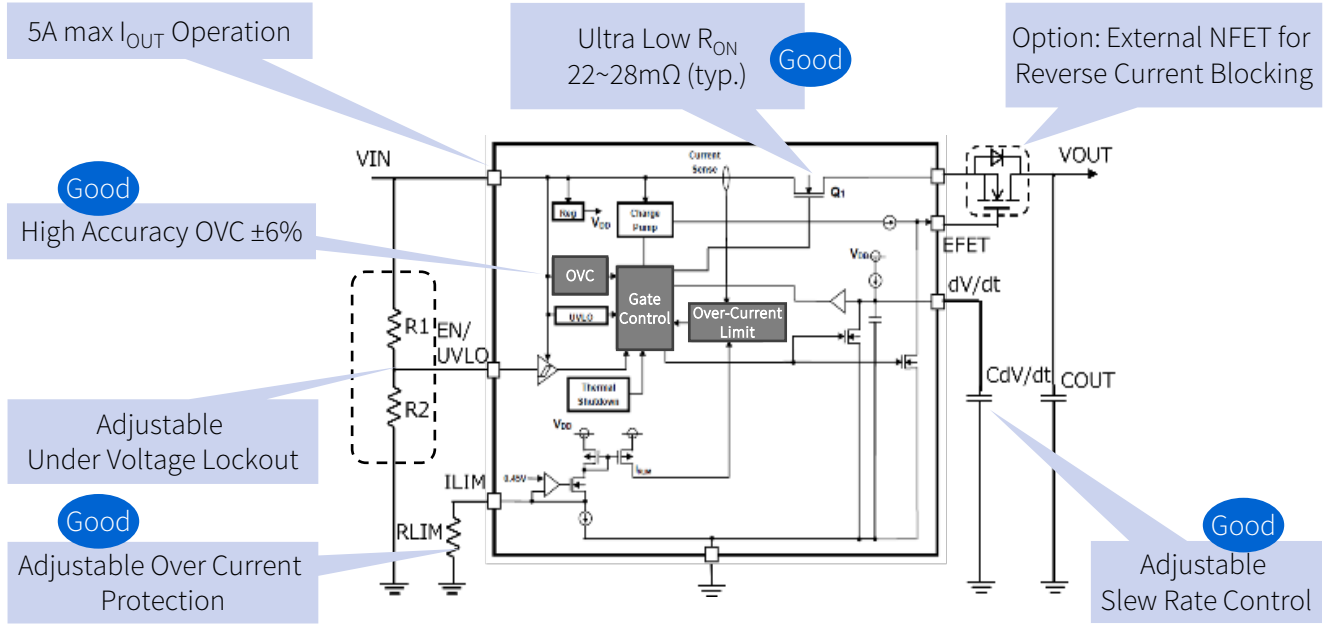
### Advantages

- Repeatable usage
- High-precision over-voltage clamp
- High-precision over-current protection adjustment
- Fast shut-down for maximum safety
- Lower power loss
- Recovery operation
- Low inrush-current down to 0.5A
- EMI reduction
- Self-protected
- IEC62368 system certification simplified

### Benefits

- No maintenance
- No repair
- Less costs for field failure
- Increased reliability
- Lower noise
- Faster time-to-market and product launch
- Over-voltage, over-current alert notification
- Small form factor
- Reduced heat system

## Typical application



## eFuse line-up

Product	VIN range	ILIM range	OCP / OVC*	Slew rate control	EN control	Recovery	Flag	Auto discharge	Package	MP
TCKE712NL	4.4V~13.2V	0.5A~3.65A Adjustable	adjustable OCP adjustable OVC	Adjustable	Active High	Latched	Available	Available	WSO10B 3x3mm	OK
TCKE800NA / TCKE800NL	4.4V~18V	0.5A~5.0A Adjustable	None	Adjustable	Active High	Auto retry / Latched	None	Available	WSO10B 3x3mm	OK
TCKE805NA / TCKE805NL	4.4V~18V	0.5A~5.0A Adjustable	6.04V OVC	Adjustable	Active High	Auto retry / Latched	None	Available	WSO10B 3x3mm	OK
TCKE812NA / TCKE812NL	4.4V~18V	0.5A~5.0A Adjustable	15.1V	Adjustable	Active High	Auto retry / Latched	None	Available	WSO10B 3x3mm	OK
TCKE903NA / TCKE903NL	2.7V~23V	0.4A~4.0A	3.87V	Adjustable	Active High	Auto retry / Latched	Available	Available	WSO10B 3x3mm	OK
TCKE903QNA / TCKE905QNA	2.7V~23V	0.4A~4.0A	3.87V/ 5.7V	Adjustable	Active High	Auto retry	Available	Available + Quick discharge	WSO10B 3x3mm	OK
TCKE905ANA / TCKE905NL	2.7V~23V	0.4A~4.0A	5.7V	Adjustable	Active High	Auto retry / Latched	Available	Available	WSO10B 3x3mm	OK
TCKE912NA / TCKE912NL	2.7V~23V	0.4A~4.0A	13.7V	Adjustable	Active High	Auto retry / Latched	Available	Available	WSO10B 3x3mm	OK
TCKE920NA / TCKE920NL	2.7V~23V	0.4A~4.0A	22.2V	Adjustable	Active High	Auto retry / Latched	Available	Available	WSO10B 3x3mm	OK
TCKE6RA / TCKE6RL	4V~40V	0.5A~2.5A	Adjustable OCP	Adjustable	Active High	Auto retry / Latched	Available	Available	TSP6F 2.9x2.8mm	CY2Q25