

Tight-Threshold Adjustable Overcurrent Protected Power Switches for 5V and 3.3V Rails

The AP22652/A and AP22653/A are single-channel, tight-threshold Adjustable Overcurrent Protected Power Switches optimized for applications that require accurate overcurrent protection. The non-A versions have a current limit with a flag. The “A” versions are latched off when a fault occurs. They need the power rail cycled or the enable pin toggled, to restore operation.

Their key feature is the external resistor programmable overcurrent threshold, between 125mA and 2665mA. Its accuracy $\pm 10\%$ can be achieved at high current-limit settings. This flexibility allows for a wide array of applications.

All four parts offer a robust solution as they offer controlled turn-on and turn-off, overcurrent protection, sudden short-circuit protection, reverse-current protection, and a flag that signals the system if the overcurrent event is longer than 6ms. Internal over temperature protection ensures a robust system design that recovers from an overcurrent event.

The AP22652/A have active-low enable, whereas AP22653/A have active-high enable. All devices are available in SOT26 and W-DFN2020-6 packages.



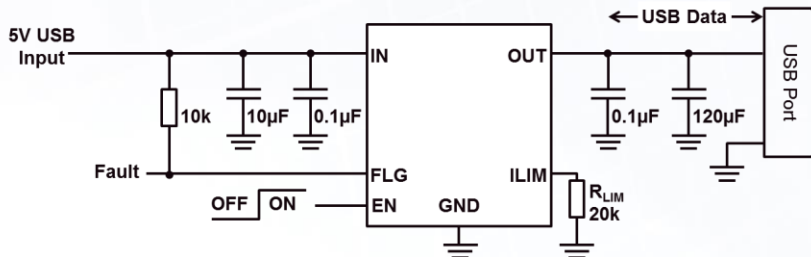
The Diodes Advantage

- **Adjustable Current Limit from 125mA to 2665mA**
Single device used across platforms with a resistor change up to 2.1A load
- **$\pm 10\%$ Current-Limit Accuracy at 1.735A with RLIM = 15k Ω**
Allows closer matching of current limits to system requirements, reducing unnecessary overhead
- **Fast Short-Circuit Response Time: 5 μ s**
Prevents unnecessary system shutdown or restart, which improves system robustness
- **Reverse-Current Protection: Blocking During Shutdown and Current Limiting while Enabled**
Protects system from reverse currents when peripherals are externally powered
- **Robust Protection Features Set with Fault Reporting: Overcurrent, Output Overvoltage, and Thermal Shutdown**
Improved robustness of USB ports

Applications

- Notebook PCs
- Tablet PCs
- Motherboards
- Embedded Systems
- Set-Top Boxes
- TVs
- Telecom Systems

Application Diagram



Product Portfolio

Part Number	Enable Logic (Active)	Latches Off After Fault	Maximum Continuous Output Current	Maximum Current Limit/ Trigger	Operating Voltage Range	Quiescent Current @3.6V	$R_{DS(ON)}$ @ $V_{IN} = 5.0V$	Output Discharge MOSFET On-resistance	Reverse Current Protection (RCB)	Package Outlines
			A	A	V	μA	m Ω	m Ω		
AP22652	Low	No	2.1	2.66	3 to 5.5	140	65	150	Y	SOT26 W-DFN2020-6 (Type A1)
AP22652A	Low	Yes								
AP22653	High	No								
AP22653A	High	Yes								

Ordering Information

Device	Marking Code	Package Marking Information	Outline	Package Code	Reel Quantity	Tape Width	Reel Size
AP22652W6-7	FJ	FJ Y WX	SOT26	W6	3000	8mm	7"
AP22652AW6-7	FR	FR Y WX					
AP22653W6-7	FK	FK Y WX					
AP22653AW6-7	RS	RS Y WX					
AP22652FDZ-7	FJ	FJ Y W X	W-DFN2020-6 (Type A1)	FDZ	3000	8mm	7"
AP22652AFDZ-7	FR	FR Y W X					
AP22653FDZ-7	FK	FK Y W X					
AP22653AFDZ-7	RS	RS Y W X					

To find out more information:

<https://www.diodes.com/part/AP22652>

<https://www.diodes.com/part/view/AP22652A>

<https://www.diodes.com/part/AP22653>

<https://www.diodes.com/part/AP22653A>