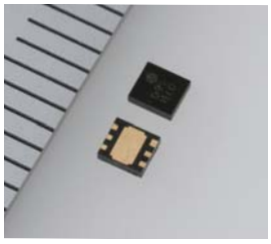
Delay capacitor adjustable voltage detectors with sense pin isolation

TOREX
New Product Leaflet

XC6132/XC6133/XC6134 Series

The XC6132/XC6133/XC6134 series are voltage detectors of the sense pin isolation type with capacitor-delay function. The sense pin and power input pin are isolated to enable monitoring of the voltage of another power supply. The output can be maintained in the detect state even if the power voltage drops to 0V. The sense pin is also suitable for detecting high voltage, and the detection and release voltage can be set to any value using an external resistance.

The XC6132/XC6134 series has a HYS external adjustment pin that allows the hysteresis to be set as desired using a single resistor. These voltage detectors are ideal for monitoring the voltage of a vehicle battery during cranking, and for power supplies with large voltage fluctuations such as an electric double layer.The XC6132 series also has an internal surge voltage protection circuit. This protects the IC even when overvoltage is applied to the input.



USP-6C
(1.8x2.0x0.7mm)

SALES POINT 1 Comparison of characteristics, internal resistance ratio for release / detection delay

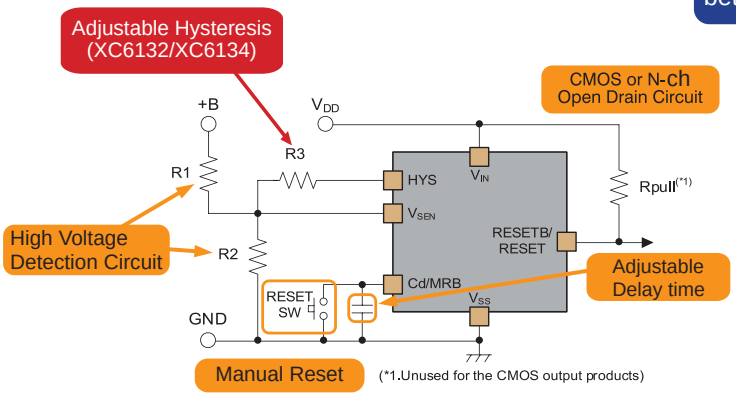
	XC6132	XC6133	XC6134
Operating Voltage Range	1.6V ~ 6.0V		
Detect Voltage Range	0.8V ~ 2.0V	1.0V ~ 5.0V	0.8V ~ 5.0V
Detect Voltage Accuracy	±1.2%(≧1.5V) ±18mV(＜1.5V)	±1.5%(≧3.1V) ±1.2%(≧1.5V) ±18mV(＜1.5V)	
Temperature Characteristics	±50ppm/℃(TYP)		
Output Configuration	CMOS or N-ch Open drain		
Output logic	H level or level at detection		
Supply Current	1.28μA (V_{IN}=1.6V) 1.36μA(V_{IN}=6.0V)		
Hysteresis width	V_{DF}×0.1%(TYP)	V_{DF}×5%(TYP)	V_{DF}×0.1%(TYP)
Functions	**Adjustable Hysteresis**	-	**Adjustable Hysteresis**
	Manual reset function		
	Release delay / detection delay		
	Sense pin isolation **Surge protection function**	Sense pin isolation	
Operating Ambient Temperature	-40℃ ~ +125℃		
Package	USP-6C, SOT-26		

Type	Output logic	Delay time (internal resistance ratio for release/detection delay)
A	At detection“H”	1:0
B	At detection“H”	1:0.125
C	At detection“H”	1:1
D	At detection“H”	2:1
L	At detection“H”	0.076:1
E	At detection“L”	1:0
F	At detection“L”	1:0.125
H	At detection“L”	1:1
K	At detection“L”	2:1
M	At detection“L”	0.076:1

SALES POINT 2 Set any hysteresis with a single resistor

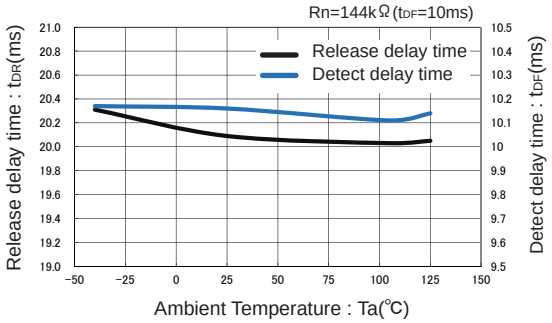
Any hysteresis can be set by connecting a resistor (R3) between the V_{SEN} and HYS pins.

Any release and detection delay time can be set with an external capacitor Accuracy and temperature characteristics are even better than previous products



XC6133C10DMR-G

V_{IN}=3.3V, V_{SEN}=0.9V⇔1.1V
Cd=0.1μF, Rp=288kΩ(t_{DR}=20ms)
Rn=144kΩ(t_{DF}=10ms)



RoHS Compliant
Halogen Antimony FREE

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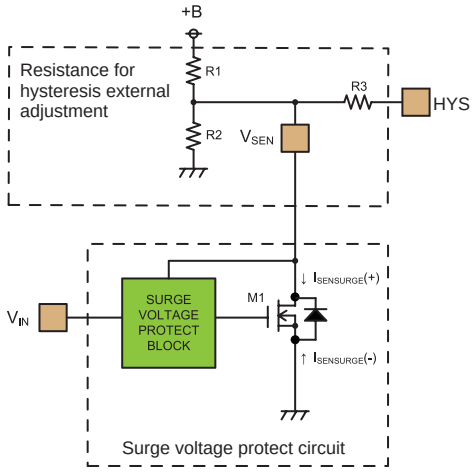
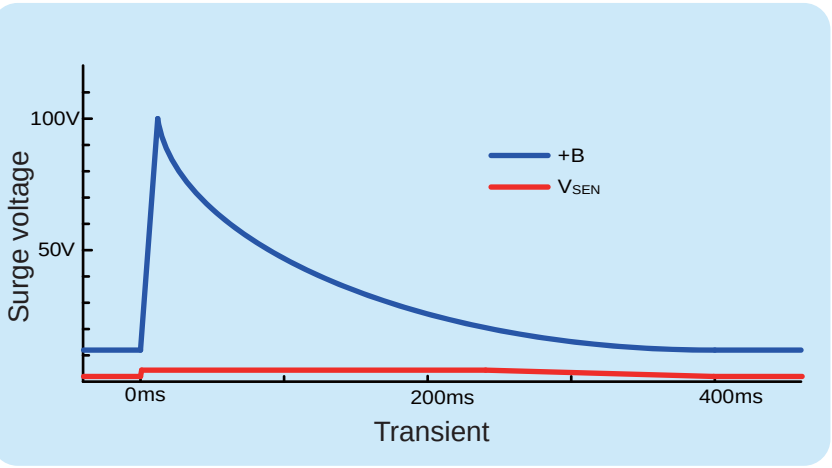
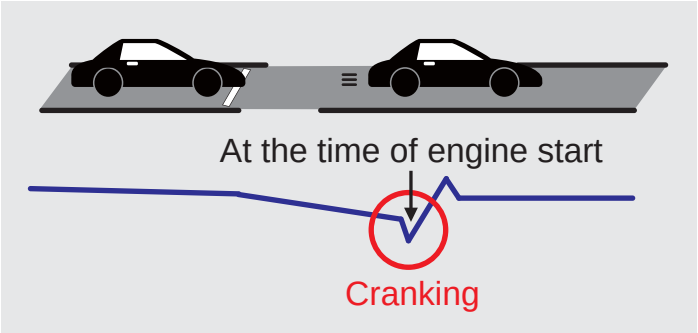
XC6132 No need for a clamp diode Surge voltage protection function

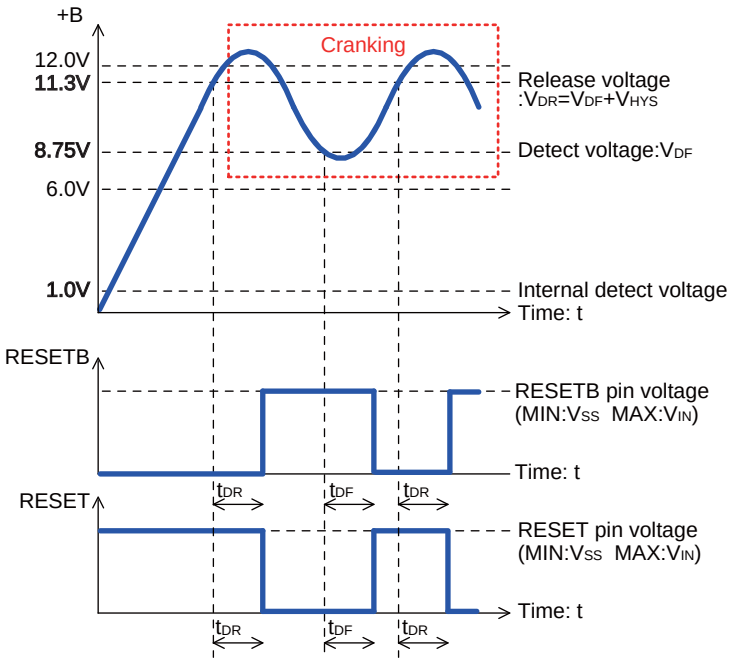




The VSEN pin can be protected from overvoltage by setting M1 to ON with a signal, SURGE VOLTAGE PROTECT BLOCK, even when a 100V load dump surge is input into +B.
This eliminates the need for an external clamp diode.
Surge currents of +2.5mA(≦200ms) and -2.5mA(≦20ms) flow.

XC6132/XC6134: Vehicle battery Voltage detection during cranking





The detection voltage and release voltage can be adjusted to any value by resistance dividing. Furthermore, the hysteresis voltage can be adjusted with a single resistor, enabling control by means of a simple circuit that does not cause false detection even when the voltage drops significantly during cranking.
L level (RESETB) at detection or H level (RESET) at detection can be selected, allowing you to choose the output type that suits your specifications.
*Drawing example: Detection voltage = 8.75V(V_{DF}), release voltage (V_{DF}+V_{HYS}) = 11.3V