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Automotive-grade SCR Thyristor

Portfolio & Application

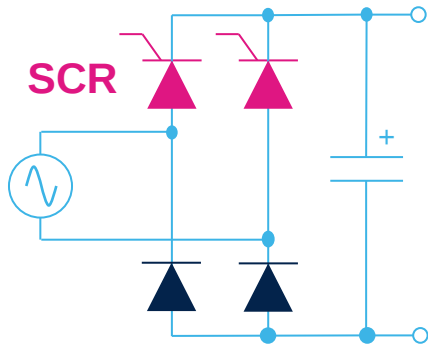
Discrete & Filter Division

Automotive and Discrete Group





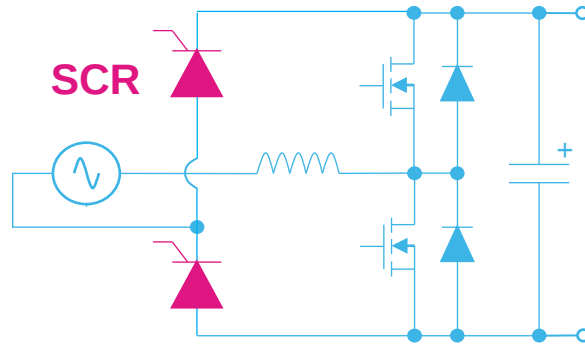
Thyristor functions in Electrical Vehicles



OBC

Mixed SCR bridge

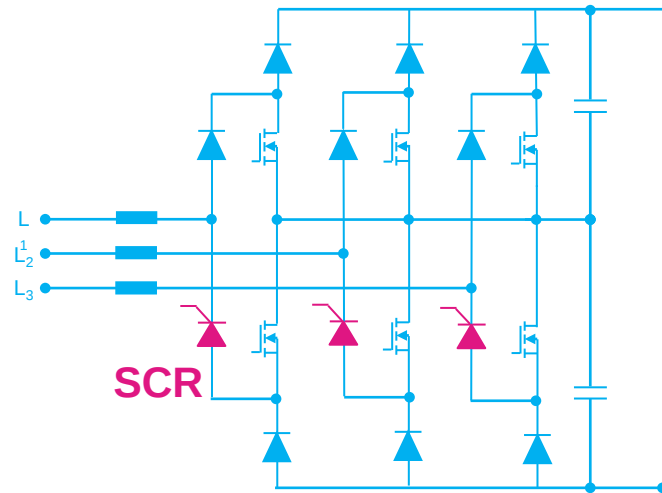
Inrush Current Limitation
Up to 15 kW



OBC

Single-phase Totem Pole

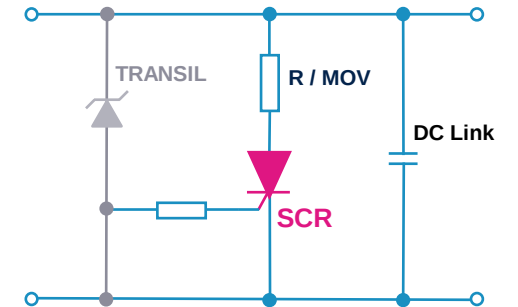
Inrush Current Limitation
Up to 8 kW per phase



OBC / Station

3-Φ Vienna modified

Inrush Current Limitation
Up to 25 kW



OBC / BMS

Overvoltage / Bus Discharge

Energy absorber
Up to 2800 A / 0.5 ms surge



Automotive SCR Thyristors range

Robust AEC-Q101 qualified SCR switches for Inrush Current Limitation



Part Number	I_{TRMS}	V_{DRM}	I_{TSM}	Package			$I_{DC\ OUT}$
	(A)	(V)	(A)	TO-247	D ² PAK	A-SMIT	(A)
TN3050H-12GY	30	1200	300		●		38
TN3050H-12WY				●			
TN4050HP-12GY	40	1200	400		●		50
TN4050HP-12WY				●			
TN6050HP-12WY	60	1200	600	●			75
STTD6050H-12M2Y	60	1200	500			●	75
STTN6050H-12M1Y	60	1200	600			●	75

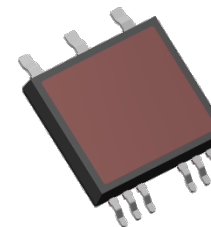
Under development



D²PAK



TO-247



ACEPACK SMIT

150°C reliability in off-state

High switching life expectancy

inrush current robustness

Fast power up & line drop recovery

Auto-grade Thyristors and EV challenges

CHALLENGE

SOLUTION

BENEFIT

Vibrations in Vehicle

No Moving Part

Improved Reliability

**Inrush Current Limitation
IEC61000-3-3 compliant**

SCR in Phase Control

Smart Control, Fast Startup

125 °C Ambient

T_J Max 150°C @1200V

AEC-Q101 Qualified



Thyristors in the Connected Vehicle

Thyristor functions in Electric & Hybrid Vehicles

On-board Charger

AEC-Q101
TN6050HP-12WY



Overvoltage Protection

Pulse Surge Current
TM8050H-8W



Voltage Regulator

High Temperature
TM8050H-8D3



Fast Charging

Current Surge
STTN6050H-12M1Y



BMS Bus Discharge

Turn-on performance
TN4050HP-12WY



Belt Starter Generator

1200V SCR
TN3050H-12WY





Your Design support & Tools



Portfolio &
Datasheets

Phone Apps



Portfolio

Selector Guide



Reference designs

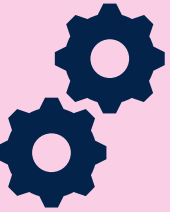
Evaluation
boards



Auto.
Grade
SCR

E-Design
suite

Intelligent
design tools



Online
Support

Find answers



Application
Notes

Product know-how
& design tips



Our technology starts with You



Find out more at www.st.com/en/thyristor-scr-ac-switches.html

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