



life.augmented



# Release to Market 4 Amps Triac **Z04** & SCR **X04**

Division Product Marketing

25 October, 2022

Discrete & Filter Division

Automotive and Discrete Group



# Introduction to 4 Amps Thyristors

## Z04xxMx

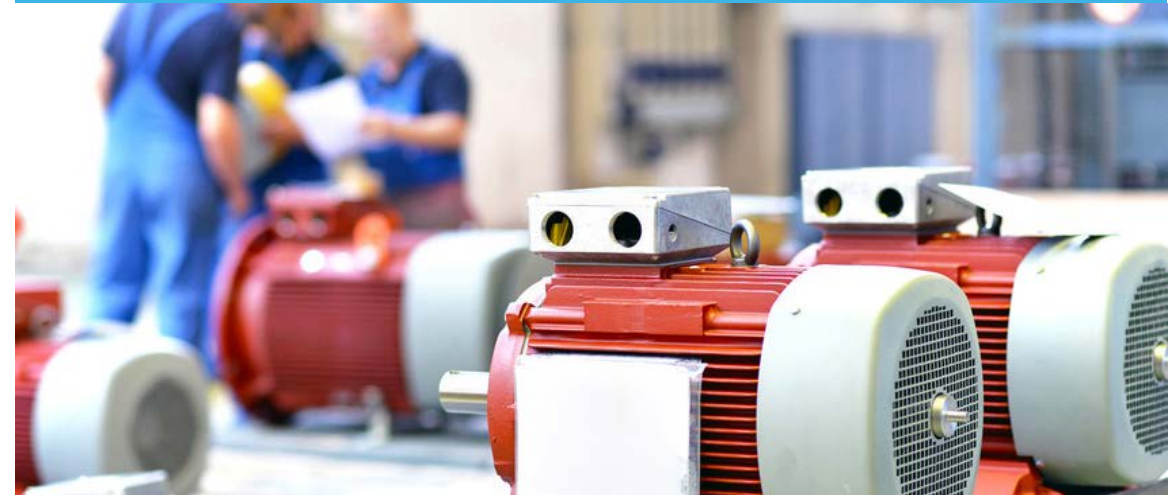
4 Amps compact Triac for AC drive



- Up to 4 Amps AC load driving
- 750 V of maximum voltage for AC Line operation
- Tradeoff of power density:
  - $T_{J\max} = 125\text{ }^{\circ}\text{C}$
  - Compact package IPAK & DPAK

## X04xxMx

4 Amps sensitive SCR for power switching

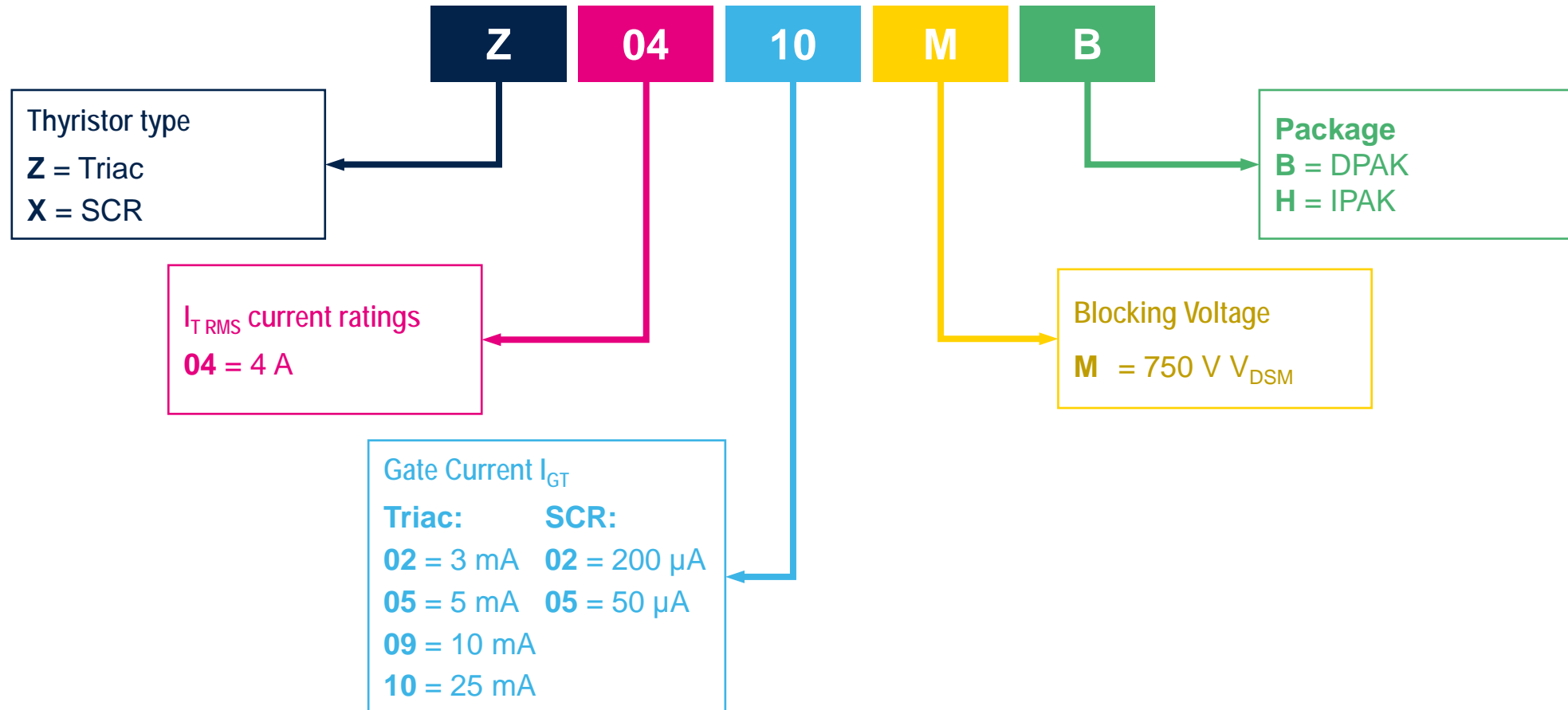


- Up to 40 Amps single surge current capability
- 750 V of maximum voltage for AC Line operation
- Tradeoff of power density:
  - $T_{J\max} = 125\text{ }^{\circ}\text{C}$
  - Compact package IPAK & DPAK



# 4 Amps Thyristor Naming Scheme

12 new products to answer the most of application needs





# Where to find 4 Amps Triac & SCR ?

## Appliances



- Coffee machine
- Small appliances
- Gas range ignitor

## Power conversion



- < 500 W SMPS
- LED ballast
- Over-voltage protection

## Industrial



- Circuit breaker GFCI / AFCI
- AC motor drive
- Motorbike ignitor



# 4 Amps Triac & SCR - Application topologies

4 Amps Thyristors for a large range of functions

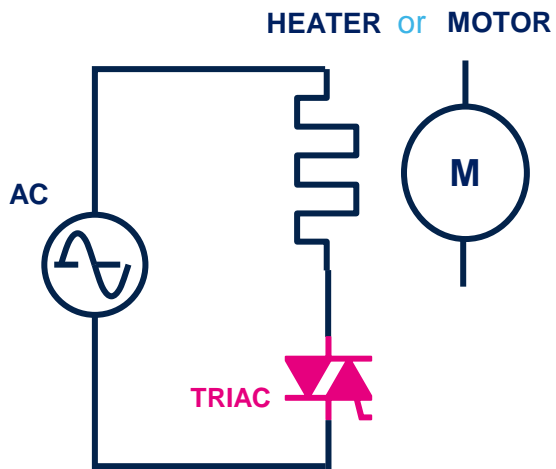


Z04

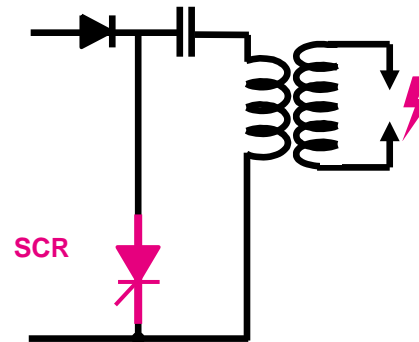


X04

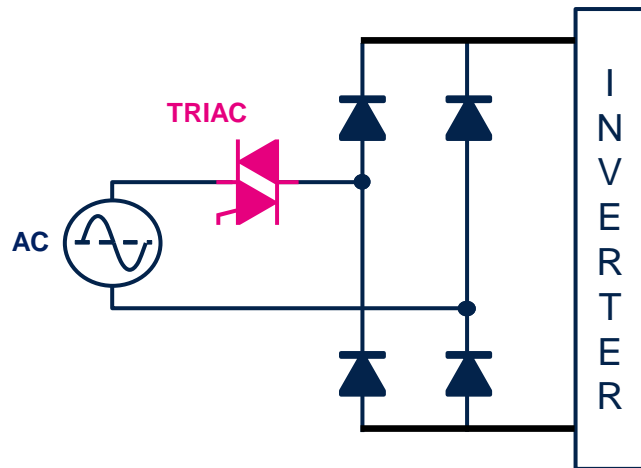
AC load drive



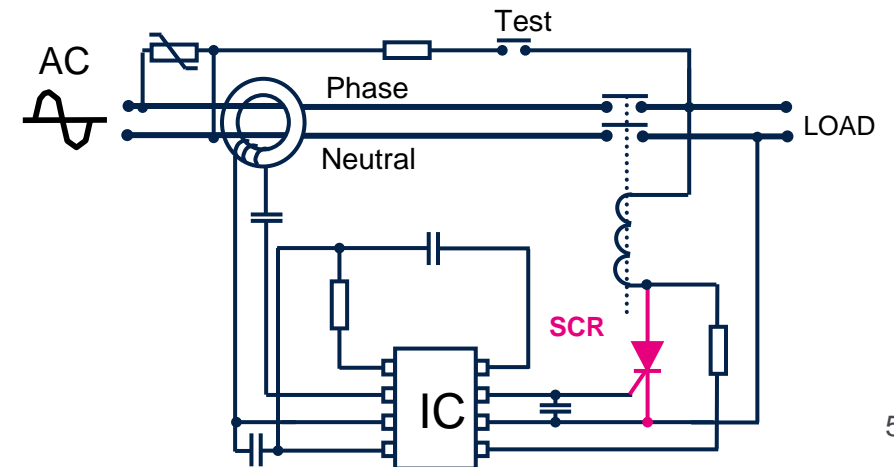
Ignition



Inrush limitation



Circuit breaker







# 4 Amps Thyristor performances & features

## Z04xxMx Triac

- **Extra blocking voltage for AC line operation:**
  - $V_{DRM} / V_{RRM} = 600$  V max. repetitive voltage
  - $V_{DSM} / V_{RSM} = 750$  V max. non-repetitive for voltage surge
- **High inrush current management:**
  - Up to 15 A / 20 ms current surge capability
- **Easy gate driver design:**
  - 4 quadrants Triac
  - Available max.  $I_{GT}$  version : 3 / 5 / 10 / 25 mA
- **Strong dynamic performances**
  - $dV/dt$  up to 200 V/ $\mu$ s ( $I_{GT} = 25$  mA)
  - High turn-off commutation capability: 5 V/ $\mu$ s ( $I_{GT} = 25$  mA)

Reliable AC loads driving switch

## X04xxMx SCR

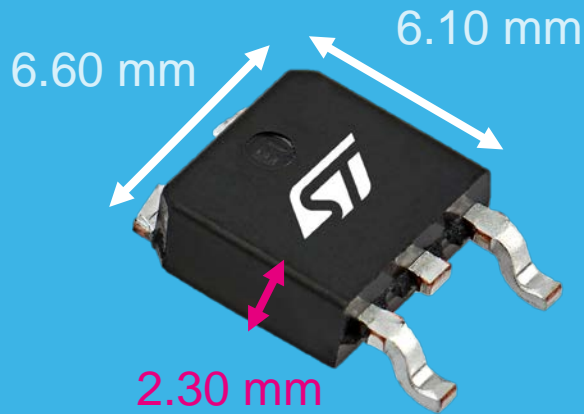
- **Extra blocking voltage for AC line operation:**
  - $V_{DRM} / V_{RRM} = 600$  V Repetitive
  - $V_{DSM} / V_{RSM} = 750$  V Non-repetitive for surge
- **High inrush current management:**
  - Up to 30 A / 10 ms current surge capability
- **Very low triggering gate current:**
  - Sensitive gate drive for energy savings
  - Available max.  $I_{GT}$  version : 50  $\mu$ A and 200  $\mu$ A
- **Strong dynamic performances**
  - $dV/dt$  at 10 and 15 V/ $\mu$ s (respectively for  $I_{GT} = 50$   $\mu$ A and 200  $\mu$ A)

High pulse current switch



# DPAK & IPAK: High power density packages

IPAK & DPAK offers optimized tradeoff for compact designs

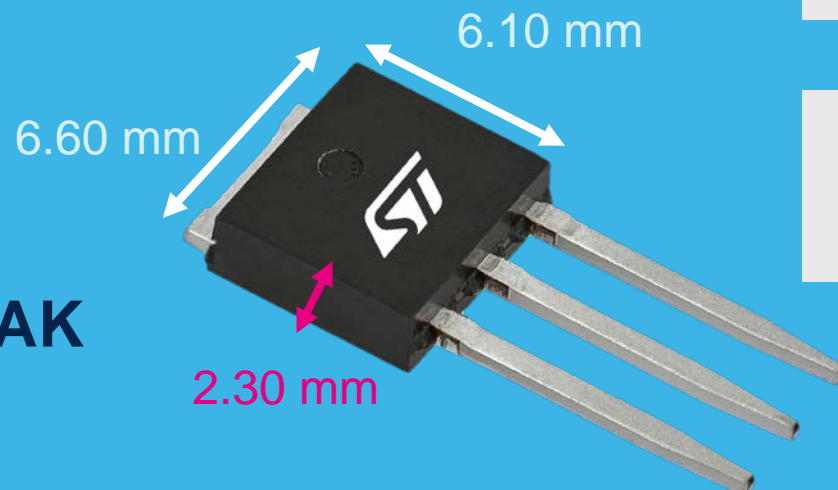


**DPAK**

SMD DPAK or Through-hole IPAK options

Flat package for compact design - 2.30 mm thickness

**IPAK**



DPAK  $R_{th\ j-a} = 70^{\circ}\text{C/W}$  with  $0.5\text{cm}^2$  PCB pad



# Your Design support & Tools



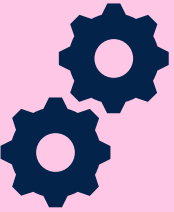
Portfolio & Datasheets

Phone Apps



E-Design suite

Intelligent design tools



Portfolio

Selector Guide

4 Amps Thyristors

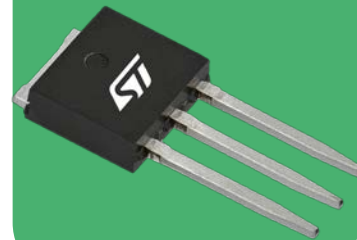
Online Support

Ask your questions



Reference design

Evaluation boards



Application Notes

Product know-how & design tips







# Product offer list

Order code	Package	Delivery mode
Z0402MB	DPAK	Tape & Reel
Z0402MH	IPAK	Tube
Z0405MB	DPAK	Tape & Reel
Z0405MH	IPAK	Tube
Z0409MB	DPAK	Tape & Reel
Z0409MH	IPAK	Tube
Z0410MB	DPAK	Tape & Reel
Z0410MH	IPAK	Tube

Order code	Package	Delivery mode
X0402MB	DPAK	Tape & Reel
X0402MH	IPAK	Tube
X0405MB	DPAK	Tape & Reel
X0405MH	IPAK	Tube

# Our technology starts with You

© STMicroelectronics - All rights reserved.

ST logo is a trademark or a registered trademark of STMicroelectronics International NV or its affiliates in the EU and/or other countries.

For additional information about ST trademarks, please refer to [www.st.com/trademarks](http://www.st.com/trademarks).

All other product or service names are the property of their respective owners.



life.augmented