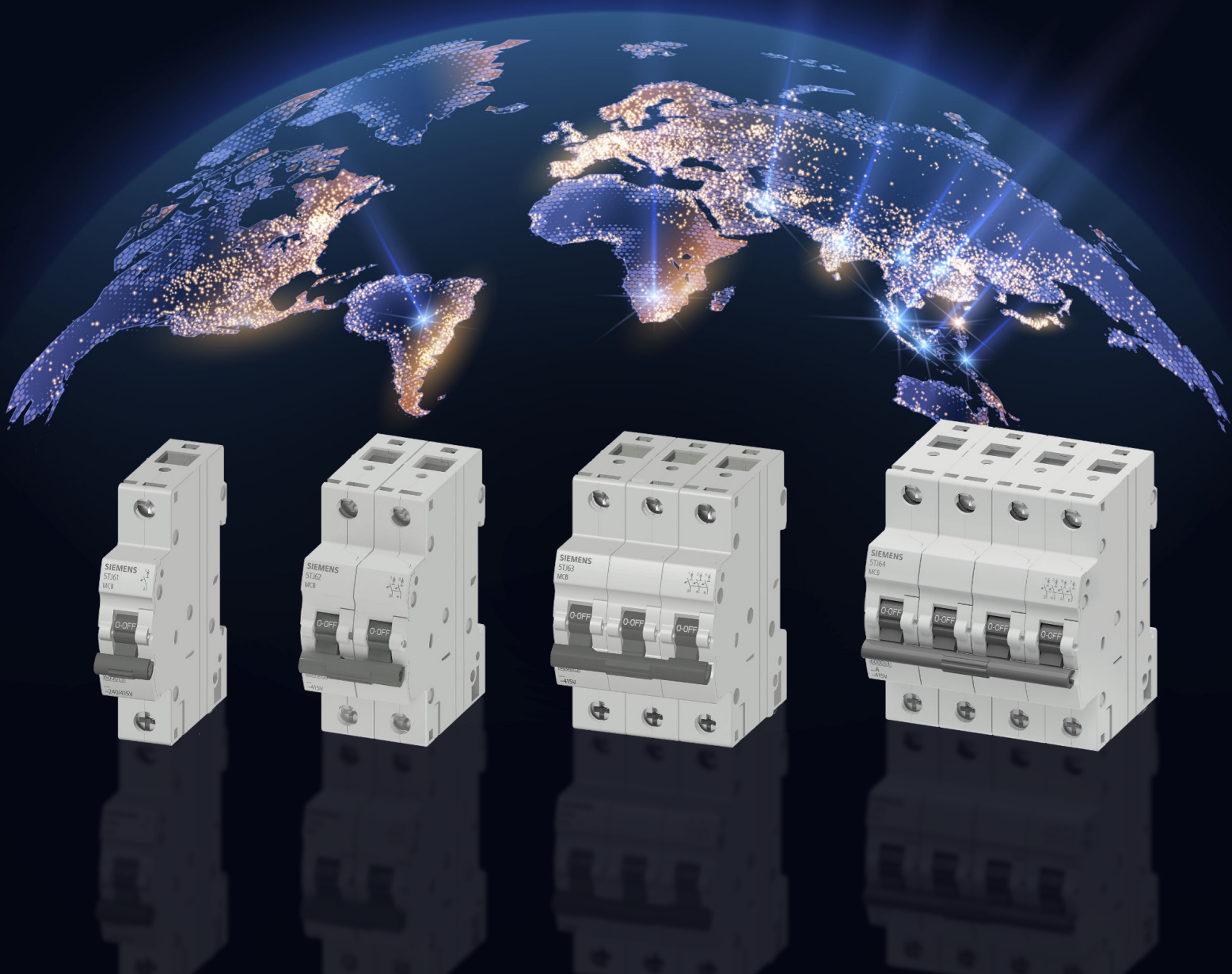
SIEMENS

SINOVA 5TJ

Miniature Circuit Breakers

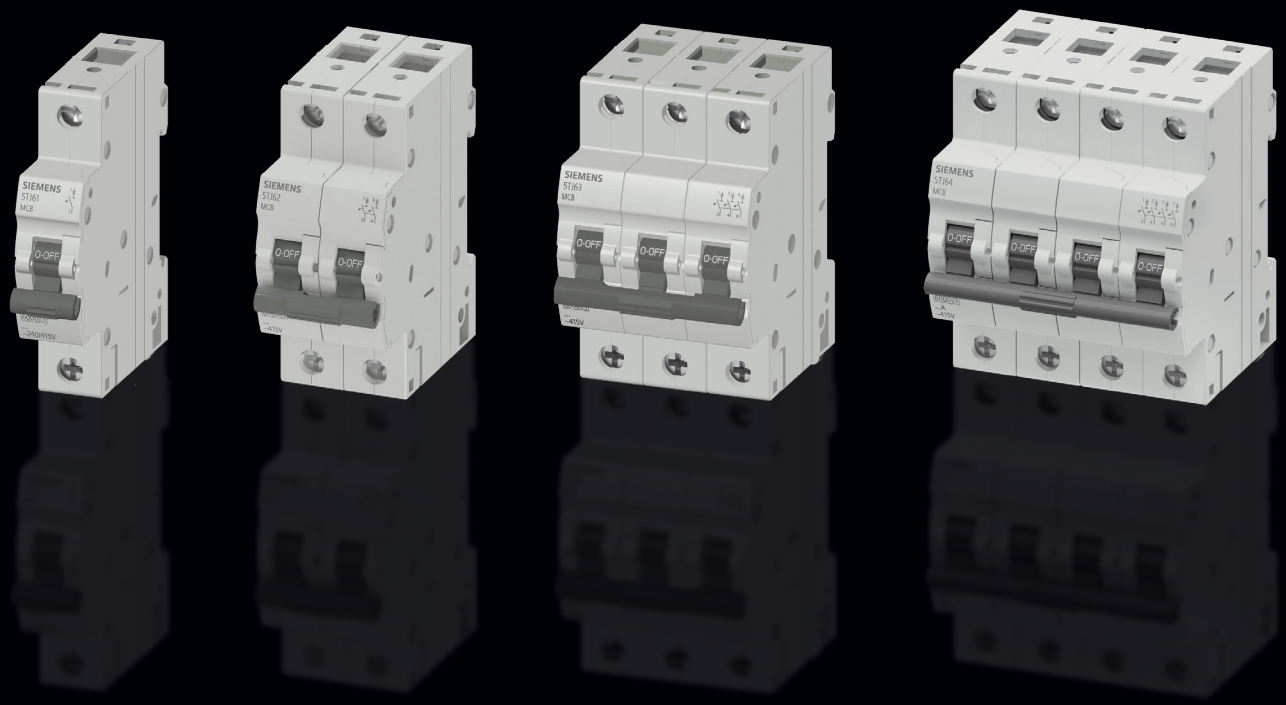
Safety ensured



Overview

SINOVA 5TJ Miniature Circuit Breakers offers complete protection to installations delivering uncompromised levels of safety. Thanks to its simplified design with full functionality, it becomes an ideal choice for buildings, utilities and infrastructure applications.

Key Features



Protection
It provides closer protection for your installation with 4.5kA, 6kA and 10kA breaking capacity.

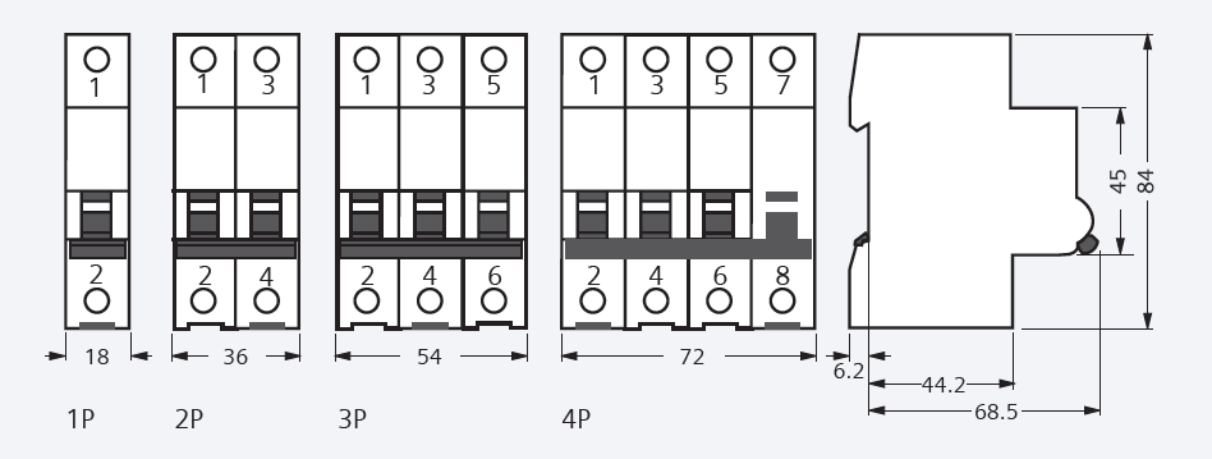
User friendly
Flexibility in termination options – separate termination for cables and fork type busbar.

Low Lifecycle Cost
Low energy consumption resulting in cost savings.

Technical Specification

			SINOVA 5TJ MCB
Standard			IEC 60898-1: 2015
Number of poles			1P, 2P, 3P, 4P
Rated Voltage		V AC	240/415
Operational Voltage	Min Max	V AC/pole V AC	24 440
Rated Breaking Capacity	acc. to IEC 60898-1	kA AC	4.5kA, 6kA & 10kA
Tripping Characteristics			B, C (6kA & 10kA) & C (4.5kA)
Current Rating		Ampere	B curve: 6-63 (6kA & 10kA) C curve: 6-63 (4.5kA, 6kA & 10kA)
Insulation Voltage		V AC	265/456
Rated Frequency		Hz	50/60
Impulse Withstand Voltage		kV	4
Degree of Pollution for 2 Overvoltage Category III			2
Line Load Reversibility			Yes
Degree of Protection	acc. to EN 60529		IP20
ROHS Complaint			Yes
CFC and Silicone-free			Yes
REACH			Yes
Terminal Tightening Torque, recommended		N.m	2
Conductor Cross-Sections		mm2	1...25 for 4.5kA & 6kA 1...35 for 10kA
Bi-connect (Dual) Terminals			Yes, on line side for 4.5kA and 6kA variant Yes, on both sides for 10kA variant
Busbar Suitability			Both Fork and Pin Type
Mounting Position			Any
Average Electrical/Mechanical Life			5,000/20,000 actuations
Ambient Temperature		°C	-25 ... +55 °C, max. 95% humidity storage temperature: -40 ... +75 °C
Dimensional Details H x W x D		mm	84 x 18 x 76 mm (1-pole) *Width change as no of module size increases from 1-pole...4-pole ** 1MW=18mm

Dimensional drawing of 5TJ



MCB Characteristic Curves

Characteristic curves describe the operational and tripping behavior of MCBs in the event of an overload or short circuit. They represent an important element for the configuration and dimensioning of devices.

Tripping Characteristic

The expected tripping behavior, and in particular the expected break time of the desired MCB can be determined from its I-t tripping characteristic. In line with the two existing tripping systems (overload release = bimetal, short circuit release = short circuit coil), the path of the I-t tripping characteristic consists of two characteristic curve sections:

- Overload section (thermal)
- Short circuit release section (magnetic)

The overload section of the curve describes the tripping behavior of the bimetal, while the short circuit release section of the characteristic curve describes the release behavior of the short circuit coil.

Depending on the equipment used and the operational behavior of the connected loads the short circuit release of the MCB must trip to ensure safe and efficient short circuit protection.

These are called the tripping characteristics. The following tripping characteristics for MCBs are standardized in accordance with IS/IEC 60898-1

- Tripping Characteristic B
- Tripping Characteristic C

B' Characteristics

'B' Characteristic MCBs reacts quickly to short circuit, and are set to trip when the current passing through them is between 3 to 5 times of the normal full load current.

They are suitable for protecting incandescent lighting and socket outlet circuits in domestic and commercial environments, where there is little risk of surges that could cause the MCB to trip.

'C' Characteristic

'C' characteristics MCBs are used for protection of electrical circuits in general and are most widely used because of its suitability for practically all electrical circuits, cable and line protection. They are capable of protecting the majority of inductive loads including most motor and fluorescent lighting loads.

'C' Characteristic MCBs react quickly to short circuit, and are set to trip when the current passing through them is between 5 to 10 times of the normal full load current.

Standard ranges for immediate tripping in accordance with IEC 60898-1, Table 2:

Tripping characteristic B : 3-5 x I_n
Tripping characteristic C : 5-10 x I_n.

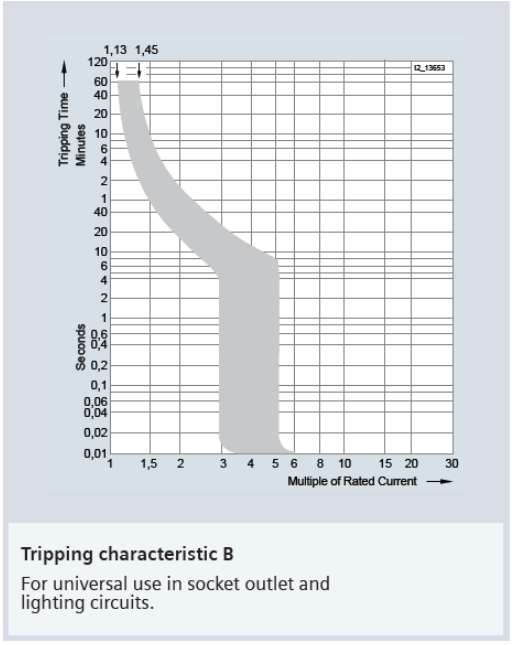
Tripping characteristics at an ambient temperature of 30°C

Tripping Characteristics	Standards	Thermal Trips Test Currents:			Electromagnetic Trips Test Current:		
		Limiting test current I_1	Minimum test current I_2	Tripping time $I_n \leq 63$ A t	Hold I_4	Latest tripping instant I_5	Tripping time t
B	IEC 60898-1	1.13 × I_n	1.45 × I_n	>1 h <1 h	3 × I_n	 5 × I_n	≥ 0.1 s < 0.1 s
C	IEC 60898-1	1.13 × I_n	1.45 × I_n	>1 h <1 h	5 × I_n	 10 × I_n	≥ 0.1 s < 0.1 s

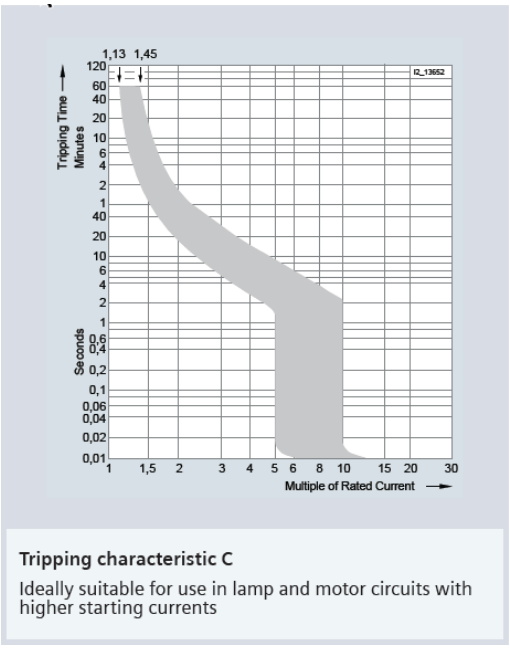
These characteristic allows applying loads having high peak currents without requiring the MCB to be oversized. In fact, thanks to this characteristic, it is possible to apply loads with peak currents up to 5 times In, (rated current) and can hence be used to best advantage for handling higher inrush currents e.g.lamps, motors, etc. Under 'C' characteristics, the magnetic operating limits (for short-circuit operations)are between 5 and 10 times the rated current (I_n) of MCB.

For example the instantaneous mechanism of a 10A MCB will operate between 50A and 100A in an overcurrent situation. The Thermal operating limits are between 1.45 I_n to Instantaneous tripping limit of the MCB.

Overview of Tripping Characteristic Curves

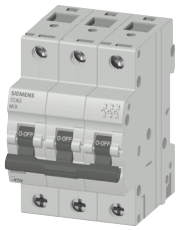


Tripping characteristic B
For universal use in socket outlet and lighting circuits.

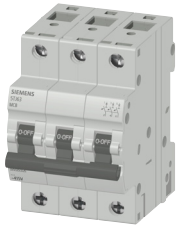


Tripping characteristic C
Ideally suitable for use in lamp and motor circuits with higher starting currents

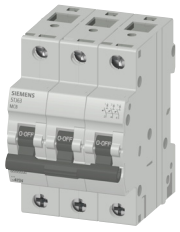
Selection & Ordering Data

4500 A	In (A)	(MW)	Characteristic C Reference No.	Standard Packaging No. of Pieces
1P, 240/415v AC				
	6	1	5TJ3106-7	12
	10		5TJ3110-7	12
	16		5TJ3116-7	12
	20		5TJ3120-7	12
	25		5TJ3125-7	12
	32		5TJ3132-7	12
	40		5TJ3140-7	12
	50		5TJ3150-7	12
	63		5TJ3163-7	12
2P, 415V AC				
	6	2	5TJ3206-7	6
	10		5TJ3210-7	6
	16		5TJ3216-7	6
	20		5TJ3220-7	6
	25		5TJ3225-7	6
	32		5TJ3232-7	6
	40		5TJ3240-7	6
	50		5TJ3250-7	6
	63		5TJ3263-7	6
3P, 415V AC				
	6	3	5TJ3306-7	4
	10		5TJ3310-7	4
	16		5TJ3316-7	4
	20		5TJ3320-7	4
	25		5TJ3325-7	4
	32		5TJ3332-7	4
	40		5TJ3340-7	4
	50		5TJ3350-7	4
	63		5TJ3363-7	4
4P, 415V AC				
	6	4	5TJ3406-7	3
	10		5TJ3410-7	3
	16		5TJ3416-7	3
	20		5TJ3420-7	3
	25		5TJ3425-7	3
	32		5TJ3432-7	3
	40		5TJ3440-7	3
	50		5TJ3450-7	3
	63		5TJ3463-7	3

Selection & Ordering Data

6000 A	In (A)	(MW)	Characteristic B Reference No.	Characteristic C Reference No.	Standard Packaging No. of Pieces
1P, 240/415v AC					
	6	1	5TJ6106-6	5TJ6106-7	12
	10		5TJ6110-6	5TJ6110-7	12
	16		5TJ6116-6	5TJ6116-7	12
	20		5TJ6120-6	5TJ6120-7	12
	25		5TJ6125-6	5TJ6125-7	12
	32		5TJ6132-6	5TJ6132-7	12
	40		5TJ6140-6	5TJ6140-7	12
	50		5TJ6150-6	5TJ6150-7	12
	63		5TJ6163-6	5TJ6163-7	12
2P, 415V AC					
	6	2	5TJ6206-6	5TJ6206-7	6
	10		5TJ6210-6	5TJ6210-7	6
	16		5TJ6216-6	5TJ6216-7	6
	20		5TJ6220-6	5TJ6220-7	6
	25		5TJ6225-6	5TJ6225-7	6
	32		5TJ6232-6	5TJ6232-7	6
	40		5TJ6240-6	5TJ6240-7	6
	50		5TJ6250-6	5TJ6250-7	6
	63		5TJ6263-6	5TJ6263-7	6
3P, 415V AC					
	6	3	5TJ6306-6	5TJ6306-7	4
	10		5TJ6310-6	5TJ6310-7	4
	16		5TJ6316-6	5TJ6316-7	4
	20		5TJ6320-6	5TJ6320-7	4
	25		5TJ6325-6	5TJ6325-7	4
	32		5TJ6332-6	5TJ6332-7	4
	40		5TJ6340-6	5TJ6340-7	4
	50		5TJ6350-6	5TJ6350-7	4
	63		5TJ6363-6	5TJ6363-7	4
4P, 415V AC					
	6	4	5TJ6406-6	5TJ6406-7	3
	10		5TJ6410-6	5TJ6410-7	3
	16		5TJ6416-6	5TJ6416-7	3
	20		5TJ6420-6	5TJ6420-7	3
	25		5TJ6425-6	5TJ6425-7	3
	32		5TJ6432-6	5TJ6432-7	3
	40		5TJ6440-6	5TJ6440-7	3
	50		5TJ6450-6	5TJ6450-7	3
	63		5TJ6463-6	5TJ6463-7	3

Selection & Ordering Data

10000 A	In (A)	(MW)	Characteristic B Reference No.	Characteristic C Reference No.	Standard Packaging No. of Pieces
1P, 240/415v AC					
	6	1	5TJ4106-6	5TJ4106-7	12
	10		5TJ4110-6	5TJ4110-7	12
	16		5TJ4116-6	5TJ4116-7	12
	20		5TJ4120-6	5TJ4120-7	12
	25		5TJ4125-6	5TJ4125-7	12
	32		5TJ4132-6	5TJ4132-7	12
	40		5TJ4140-6	5TJ4140-7	12
	50		5TJ4150-6	5TJ4150-7	12
	63		5TJ4163-6	5TJ4163-7	12
2P, 415V AC					
	6	2	5TJ4206-6	5TJ4206-7	6
	10		5TJ4210-6	5TJ4210-7	6
	16		5TJ4216-6	5TJ4216-7	6
	20		5TJ4220-6	5TJ4220-7	6
	25		5TJ4225-6	5TJ4225-7	6
	32		5TJ4232-6	5TJ4232-7	6
	40		5TJ4240-6	5TJ4240-7	6
	50		5TJ4250-6	5TJ4250-7	6
	63		5TJ4263-6	5TJ4263-7	6
3P, 415V AC					
	6	3	5TJ4306-6	5TJ4306-7	4
	10		5TJ4310-6	5TJ4310-7	4
	16		5TJ4316-6	5TJ4316-7	4
	20		5TJ4320-6	5TJ4320-7	4
	25		5TJ4325-6	5TJ4325-7	4
	32		5TJ4332-6	5TJ4332-7	4
	40		5TJ4340-6	5TJ4340-7	4
	50		5TJ4350-6	5TJ4350-7	4
	63		5TJ4363-6	5TJ4363-7	4
4P, 415V AC					
	6	4	5TJ4406-6	5TJ4406-7	3
	10		5TJ4410-6	5TJ4410-7	3
	16		5TJ4416-6	5TJ4416-7	3
	20		5TJ4420-6	5TJ4420-7	3
	25		5TJ4425-6	5TJ4425-7	3
	32		5TJ4432-6	5TJ4432-7	3
	40		5TJ4440-6	5TJ4440-7	3
	50		5TJ4450-6	5TJ4450-7	3
	63		5TJ4463-6	5TJ4463-7	3

Selection guide for residential appliances

Appliance	Capacity (Watts).	MCB current ratings (Amps).
Iron	1200	6
Mixer Grinder	200	2
Microwave Oven	750	6
Hot Plate	2000	10
Electrical Kettle	1500	10
TV/Audio System	200	2
Washing Machine	2200	16
Refrigerator 350 litres	750	4
Air Conditioner 1 hp	1500	10
1.5 hp	2500	16
2.5 hp	3500	20

The SINOVA range of products are ideal for infrastructure, buildings, utilities and industrial applications. It packs full features for cost-efficient power distribution, switching and control that is both reliable and safe. The portfolio also features comprehensive product ranges that are designed for a variety of applications, giving users Siemens trusted quality. Simply Efficient, this is the SINOVA way.

Published by
Siemens Malaysia Sdn Bhd

Smart Infrastructure
Electrical Products (EP)
Cp Tower, 11, Jalan 16/11
46350 Petaling Jaya, Selangor
For more information, please contact
E-mail: sales.my@siemens.com
Article No. SIEP-B90078-00-76MY