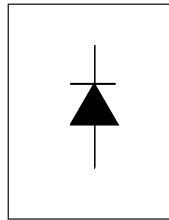


International  
**IOR** Rectifier

**QUIETIR** Series  
8EWF..S

**SURFACE MOUNTABLE  
FAST SOFT RECOVERY  
DIODE**



$V_F < 1.3V @ 8A$   
 $t_{rr} = 80ns$   
 $V_{RRM} 1000 \text{ to } 1200V$

#### Description/Features

The 8EWF..S fast soft recovery **QUIETIR** rectifier series has been optimized for combined short reverse recovery time, low forward voltage drop and low leakage current

The glass passivation ensures stable reliable operation in the most severe temperature and power cycling conditions.

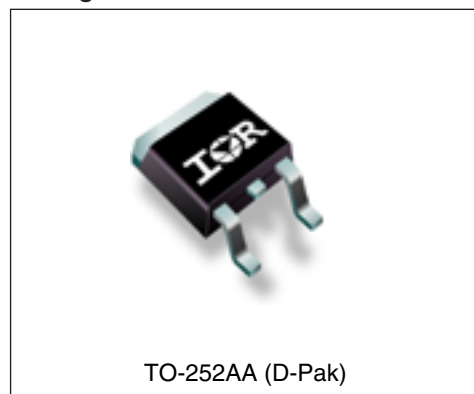
Typical applications are both:

- Output rectification and freewheeling diode in inverters, choppers and converters.
- Input rectifications where severe restrictions on conducted EMI should be met.

#### Major Ratings and Characteristics

| Characteristics                 | 8EWF..S      | Units      |
|---------------------------------|--------------|------------|
| $I_{F(AV)}$ Sinusoidal waveform | 8            | A          |
| $V_{RRM}$                       | 1000 to 1200 | V          |
| $I_{FSM}$                       | 170          | A          |
| $V_F @ 8A, T_J = 25^\circ C$    | 1.3          | V          |
| $t_{rr} @ 1A, 100A/\mu s$       | 80           | ns         |
| $T_J$ range                     | -40 to 150   | $^\circ C$ |

#### Package Outline



Voltage Ratings

| Part Number | $V_{RRM}$ , maximum peak reverse voltage<br>V | $V_{RSM}$ , maximum non repetitive peak reverse voltage<br>V | $I_{RRM}$<br>150°C<br>mA |
|-------------|---|--|--------------------------|
| 8EWF10S     | 1000  | 1100   | 4                        |
| 8EWF12S     | 1200  | 1300   |                          |

Absolute Maximum Ratings

| Parameters   | 8EWF..S | Units   | Conditions   |
|--|---------|---------|--|
| $I_{F(AV)}$ Max. Average Forward Current                   | 8       | A       | @ $T_C=94^\circ\text{C}$ , 180° conduction half sinewave |
| $I_{FSM}$ Max. Peak One Cycle Non-Repetitive Surge Current | 170     | A       | 10ms Sine pulse, rated $V_{RRM}$ applied                 |
|  | 200     |         | 10ms Sine pulse, no voltage reapplied                    |
| $I^2t$ Max. $I^2t$ for fusing                              | 144     | $A^2s$  | 10ms Sine pulse, rated $V_{RRM}$ applied                 |
|  | 200     |         | 10ms Sine pulse, no voltage reapplied                    |
| $I^2\sqrt{t}$ Max. $I^2\sqrt{t}$ for fusing                | 2000    | $A^2/s$ | $t=0.1$ to 10ms, no voltage reapplied                    |

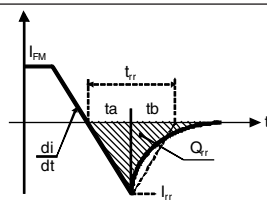
Electrical Specifications

| Parameters                            | 8EWF..S | Units     | Conditions                     |
|---------------------------------------|---------|-----------|--------------------------------|
| $V_{FM}$ Max. Forward Voltage Drop    | 1.3     | V         | @ 8A, $T_J = 25^\circ\text{C}$ |
| $r_t$ Forward slope resistance        | 25.6    | $m\Omega$ | $T_J = 150^\circ\text{C}$      |
| $V_{F(TO)}$ Threshold voltage         | 0.93    | V         |                                |
| $I_{RM}$ Max. Reverse Leakage Current | 0.1     | mA        | $T_J = 25^\circ\text{C}$       |
|                                       | 4       |           | $T_J = 150^\circ\text{C}$      |

$V_R = \text{rated } V_{RRM}$

Typical Reverse Recovery Characteristics

| Parameters                        | 8EWF..S   | Units   | Conditions   |
|-----------------------------------|-----------|---------|--|
| $t_{rr}$ Reverse Recovery Time    | 270       | ns      | $I_F @ 8A_{pk}$<br>@ $25A/\mu s$<br>@ $T_J = 25^\circ\text{C}$ |
| $I_{rr}$ Reverse Recovery Current | 4.2       | A       |  |
| $Q_{rr}$ Reverse Recovery Charge  | 1         | $\mu C$ |  |
| S Typical Snap Factor             | $t_b/t_a$ | -       |  |



**Thermal-Mechanical Specifications**

| Parameters  | 8EWF..S          | Units  | Conditions   |
|---|------------------|--------|--------------|
| T <sub>J</sub> Max. Junction Temperature Range                              | -40 to 150       | °C     |              |
| T <sub>stg</sub> Max. Storage Temperature Range                             | -40 to 150       | °C     |              |
|   |                  |        |              |
| R <sub>thJC</sub> Max. Thermal Resistance Junction to Case                  | 2.5              | °C/W   | DC operation |
| R <sub>thJA</sub> Typ. Thermal Resistance Junction to Ambient (PCB Mount)** | 50               | °C/W   |              |
| wt Approximate Weight   | 1(0.03)          | g(oz.) |              |
| T Case Style  | TO-252AA (D-Pak) |        |              |

\*\*When mounted on 1" square (650mm<sup>2</sup>) PCB of FR-4 or G-10 material 4 oz (140µm) copper 40°C/W  
 For recommended footprint and soldering techniques refer to application note #AN-994

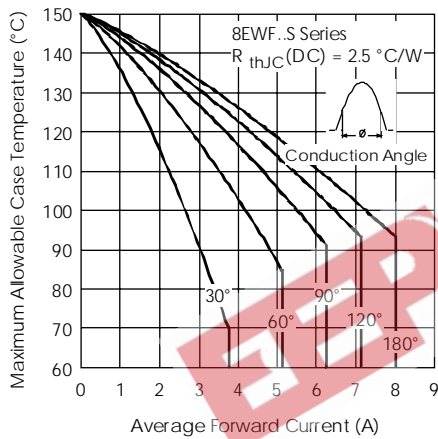


Fig. 1 - Current Rating Characteristics

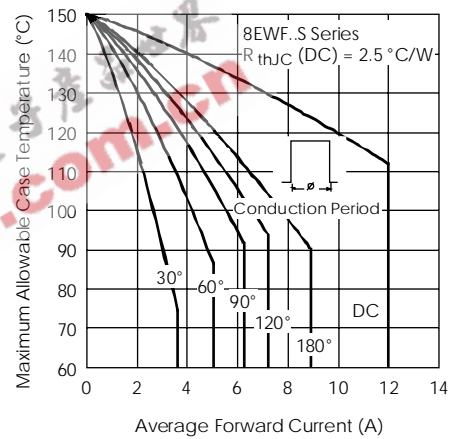


Fig. 2 - Current Rating Characteristics

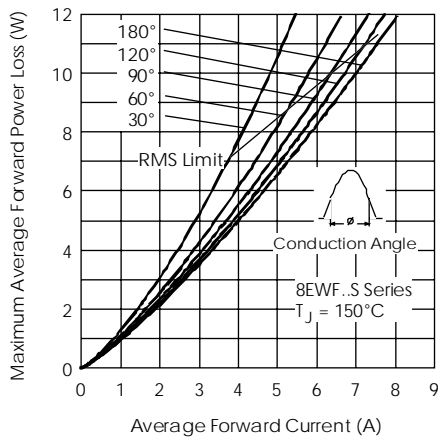


Fig. 3 - Forward Power Loss Characteristics

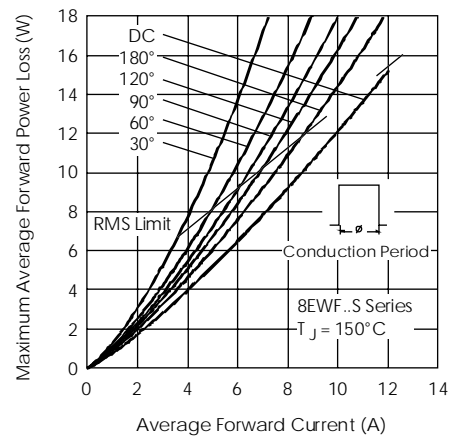


Fig. 4 - Forward Power Loss Characteristics

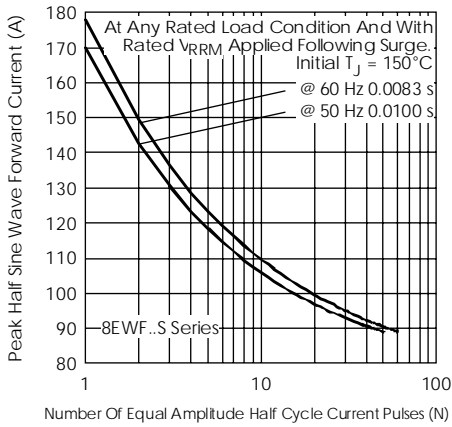


Fig. 5 - Maximum Non-Repetitive Surge Current

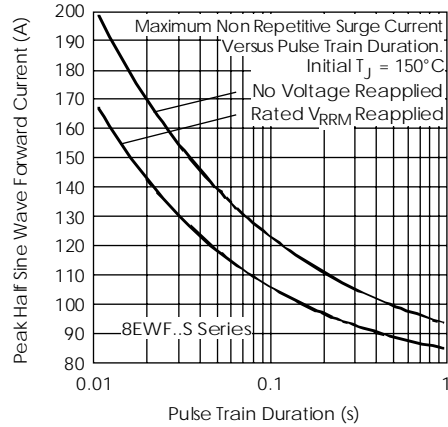


Fig. 6 - Maximum Non-Repetitive Surge Current

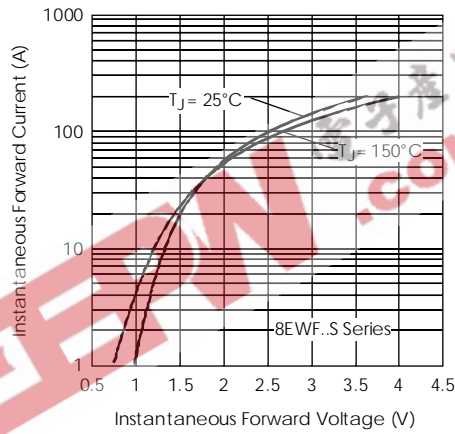


Fig. 7 - Forward Voltage Drop Characteristics

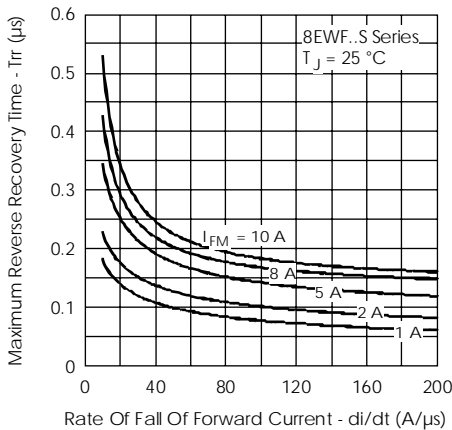


Fig. 8 - Recovery Time Characteristics,  $T_J = 25^\circ\text{C}$

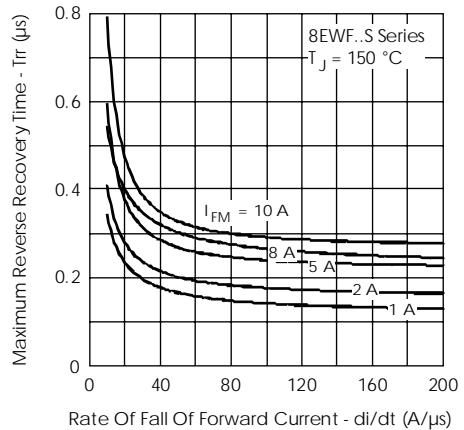


Fig. 9 - Recovery Time Characteristics,  $T_J = 150^\circ\text{C}$

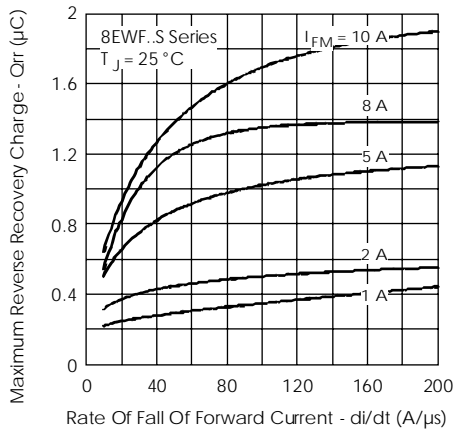


Fig. 10-Recovery Charge Characteristics, T<sub>J</sub>=25°C

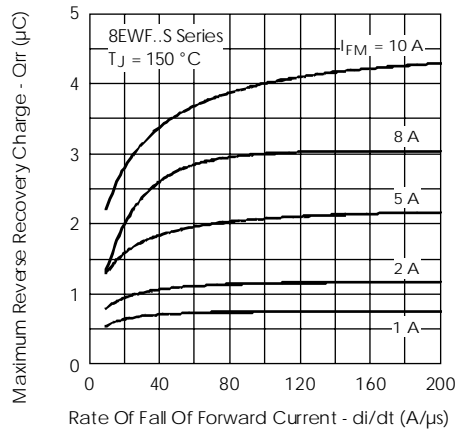


Fig. 11-Recovery Charge Characteristics, T<sub>J</sub>=150°C

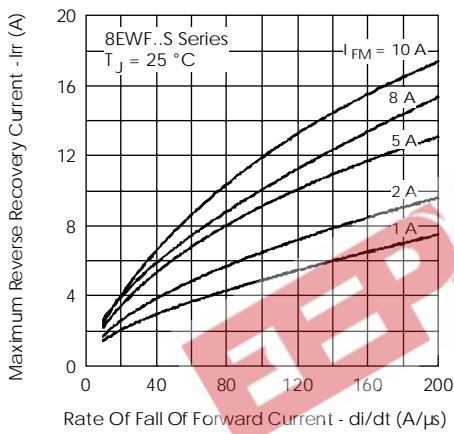


Fig. 12-Recovery Current Characteristics, T<sub>J</sub>=25°C

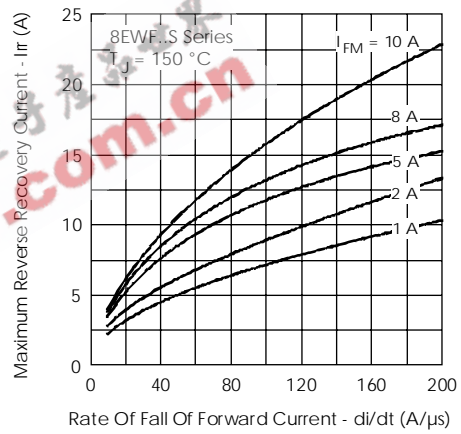


Fig. 13-Recovery Current Characteristics, T<sub>J</sub>=150°C

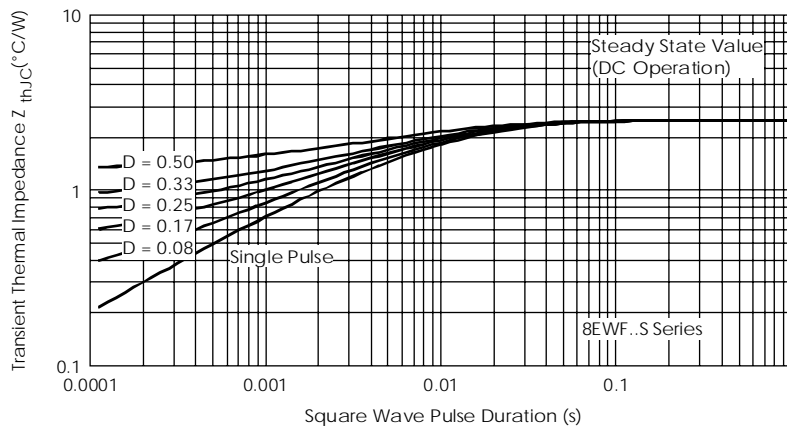


Fig. 14-Thermal Impedance Z<sub>thJC</sub> Characteristics

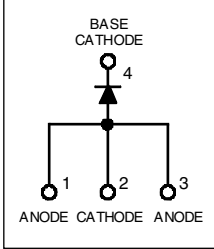
Ordering Information Table

**Device Code**

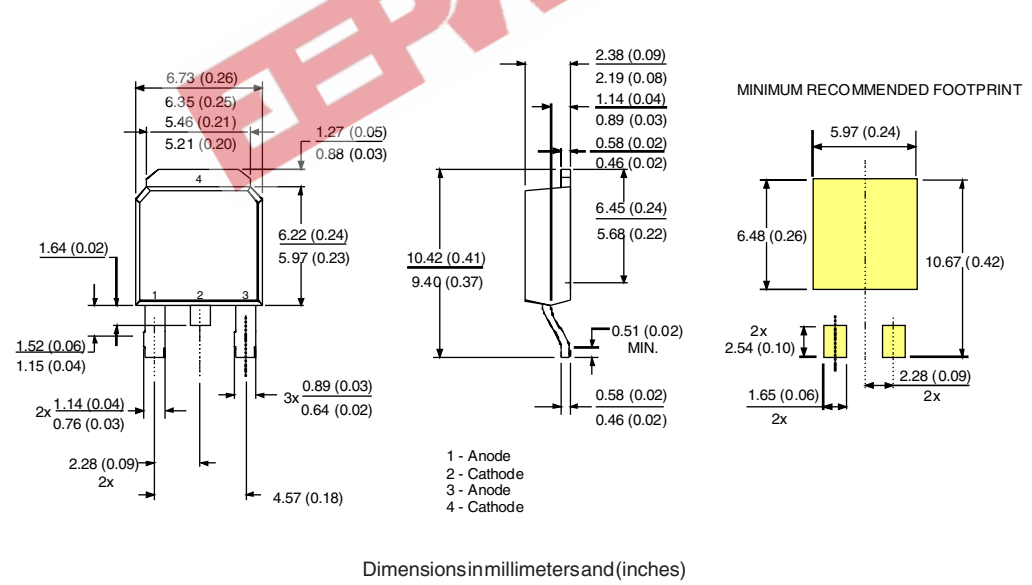
|   |   |   |   |    |   |     |
|---|---|---|---|----|---|-----|
| 8 | E | W | F | 12 | S | TRL |
| ① | ② | ③ | ④ | ⑤  | ⑥ | ⑦   |

- 1** - Current Rating
- 2** - Circuit Configuration:  
E = Single Diode
- 3** - Package:  
W = D-Pak
- 4** - Type of Silicon:  
F = Fast Soft Recovery Rectifier
- 5** - Voltage code: Code x 100 =  $V_{RRM}$ 

|    |         |
|----|---------|
| 10 | = 1000V |
| 12 | = 1200V |
- 6** - S = Surface Mountable
- 7** - Tape and Reel Option:  
TRL = Left Orientation Reel  
TRR = Right Orientation Reel



Outline Table

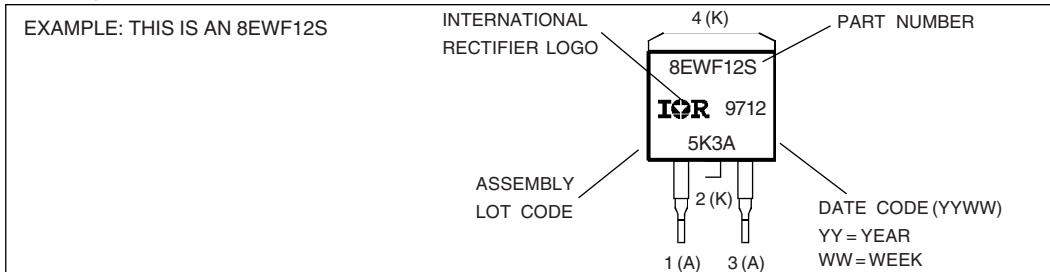


Dimensions in millimeters and (inches)

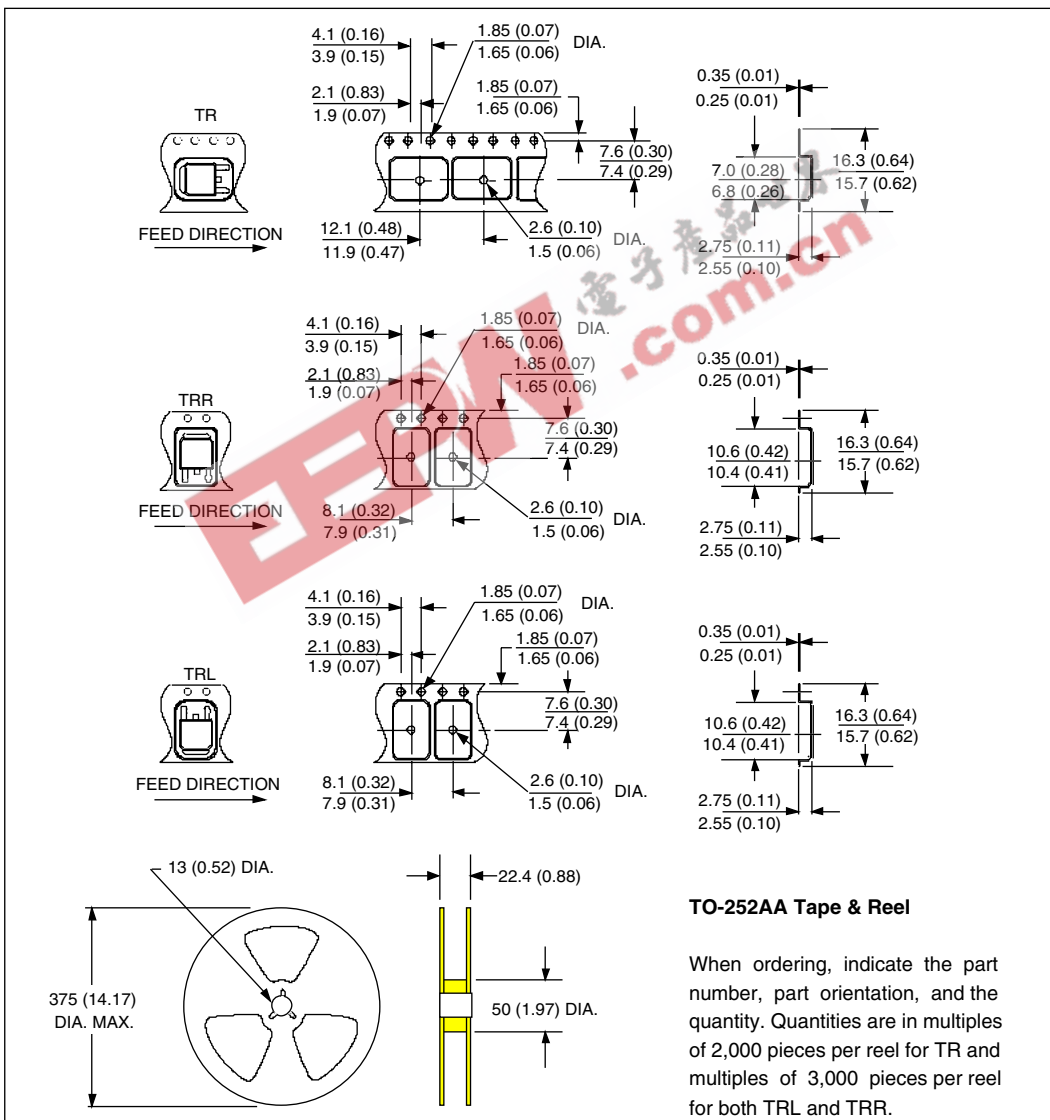
1 - Anode  
2 - Cathode  
3 - Anode  
4 - Cathode

MINIMUM RECOMMENDED FOOTPRINT

Marking Information



Tape & Reel Information



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International  
**IOR** Rectifier

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**IR FAR EAST:** K&H Bldg., 2F, 30-4 Nishi-Ikebukuro 3-Chome, Toshima-Ku, Tokyo, Japan 171. Tel: 81 3 3983 0086.  
**IR SOUTHEAST ASIA:** 1 Kim Seng Promenade, Great World City West Tower, 13-11, Singapore 237994. Tel: ++ 65 838 4630.  
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Data and specifications subject to change without notice.