Singapore Standards Council

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SINGAPORE STANDARD Specification for 13 A plugs and socket-outlets

– Part 1 : Rewirable and non-rewirable 13 A fused plugs

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This Singapore Standard was approved by the Electrical and Electronic Standards Committee on behalf of the Standards Council of Singapore on 20 October 2010.

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The Working Group on Plugs, Socket-outlets and Switches appointed by the Technical Committee on Electrical Accessories and Electric Cables to assist in the preparation of this standard comprises the following experts who contribute in their *individual capacity*:

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Members	:	Mr Goh Sheng Sze
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The organisations which the experts are involved in are:

ABB Pte Ltd
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Energy Market Authority
Hager Electro Systems Pte Ltd
Housing & Development Board
Legrand
MK Electric (Singapore) Pte Ltd
Singapore Electrical Testing Services
SP Services Ltd
SPRING Singapore
TUV SUD PSB Pte Ltd

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Foreword

This Singapore Standard was prepared by the Technical Committee on Electrical Accessories and Electric Cables under the purview of the Electrical and Electronic Standards Committee. This part of SS 145 together with SS 145 : Part 2 : 2010 - '13 A switched and unswitched socket-outlets' replaces SS 145 : Parts 1 and 2 :1997.

This standard is based on BS 1363 : Part 1 : 1995 –'13 A plugs, socket-outlets, adaptors and connection units, Part 1 : Specification for rewirable and non-rewirable 13 A fused plugs' incorporating Amendments 1, 2 and 3 and is reproduced with the permission of the British Standards Publishing Ltd.

This standard was revised to include the following:

- Insulated Shutter Opening Device (ISOD);
- Expansion of Clause 8 on clearances, creepage distances and solid insulation.

Attention is drawn to the following:

- Table 2 where the fuse rating values are amended to suit local conditions. The clause and figure numbering follows that of BS 1363 : Part 1. When the term 'Not Used' appears, it should be interpreted as 'Not Applicable'.

- The Electricity (Electrical Installations) Regulations 2002 and SS CP 5 : 1998 –'Code of practice for electrical installations'.

Attention is drawn to the possibility that some of the elements of this Singapore Standard may be the subject of patent rights. Enterprise Singapore shall not be held responsible for identifying any or all of such patent rights.

NOTE

1. *Singapore Standards (SSs) and Technical References (TRs) are reviewed periodically to keep abreast of technical changes, technological developments and industry practices. The changes are documented through the issue of either amendments or revisions.*

2. *An SS or TR is voluntary in nature except when it is made mandatory by a regulatory authority. It can also be cited in contracts making its application a business necessity. Users are advised to assess and determine whether the SS or TR is suitable for their intended use or purpose. If required, they should refer to the relevant professionals or experts for advice on the use of the document. Enterprise Singapore shall not be liable for any damages whether directly or indirectly suffered by anyone or any organisation as a result of the use of any SS or TR.*

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Specification for 13 A plugs and socket-outlets – Part 1 : Rewirable and non-rewirable 13 A fused plugs

1 Scope and conditions of use

This part of SS 145 specifies requirements for 13 A fused plugs having insulating sleeves on line and neutral pins, for household, commercial and light industrial purposes, with particular reference to safety in normal use. The plugs are suitable for the connection of portable appliances, sound-vision equipment, luminaries, etc. in a.c. circuits only, operating at voltages not exceeding 250 V r.m.s. at 50 Hz.

Requirements are specified for plugs incorporating a fuse link complying with SS 167. The plugs may be rewirable or non-rewirable complete with flexible cord. Two categories of plugs are specified covering normal and rough use. Rewirable plugs are intended for use with flexible cords complying with SS 358-5 or IEC 60227-5 having conductor cross-sectional areas from 0.5 mm^2 to 1.5 mm^2 inclusive.

NOTE 1 – See 19.1.

Non-rewirable plugs are intended for use with flexible cords having conductor cross-sectional areas not exceeding 1.5 mm^2.

NOTE 2 – See 19.4.

This standard also applies to non-rewirable 13 A plugs which have the brass earth pin replaced with a similarly dimensional protrusion made of insulating material designated as an insulated shutter opening device (ISOD) designed to operate the shutter mechanism of a socket-outlet conforming to SS 145-2.

Plugs containing switches and devices other than indicator lamps are outside the scope of this part of SS 145.

NOTE 3 – Brass can be copper, phosphor-bronze or other metal at least equivalent with regard to its conductivity, resistance to corrosion.

NOTE 4 – The titles of the publications referred to in this part of SS 145 are listed in Clause 2.

NOTE 5 – In order to maintain safety and interchangeability with plugs and socket-outlets it is necessary that these products comply with the requirements of Clauses 9, 12 and 13 of this part SS 145, however their body outline need not be limited at a distance of 6.35 mm from the plug engagement surface.

NOTE 6 – Requirements for electromagnetic compatibility are not given for the following reasons.

A plug does not emit intolerable electromagnetic interference since significant electromagnetic disturbances are only generated during insertion and withdrawal which are not continuous.

A plug is mechanical by nature of construction. The product is therefore immune from electromagnetic interference.

Plugs shall be suitable for use under the following conditions:

(a) An ambient temperature having a peak value not exceeding +40°C, the average value over 24 h not exceeding +35°C;

NOTE – Under normal conditions of use, the available cooling air is subject to natural atmospheric variations of temperature and hence the peak temperature occurs only occasionally during the hot season, and on those days when it does occur it does not persist for lengthy periods.

(b) A situation not subject to exposure to direct radiation from the sun or other source of heat likely to raise temperatures above the limits specified in (a);

(c) An altitude not exceeding 1000 m above sea level;

(d) An atmosphere not subject to abnormal pollution by smoke, chemical fumes, rain, spray, prolonged periods of high humidity or other abnormal conditions. This is equivalent to pollution degree 2, see Annex E, and overvoltage category III, see Annex D.

2 Normative references

The following referenced documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 219	Specification for soft solders
BS 923-1	Guide on high-voltage testing techniques – General
BS 4662	Boxes for flush mounting of electrical accessories – Requirements, test methods and dimensions
BS 5216	Specification for patented cold drawn steel wire for mechanical springs
BS 6004	Electric cables – PVC insulated, non-armoured cables for voltages up to and including 450/750 V, for electric power, lighting and internal wiring
BS EN 60112	Method for the determination of the proof and the comparative tracking indices of solid insulating materials
BS EN 60664-1	Insulation coordination for equipment within low-voltage systems – Principles, requirements and tests
BS EN 61140	Protection against electric shock – Common aspects for installation and equipment
IEC 60038	IEC standard voltages
IEC 60227-5	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 5: Flexible cables (cords)
IEC 60417	Graphical symbols for use on equipment
IEC 60695-2-10	Fire hazard testing – Part 2-10: Glowing/hot-wire based test methods – Glow-wire apparatus and common test procedure
IEC 61032	Protection of persons and equipment by enclosures – Probes for verification
SS 101	Specification for protection of persons and equipment by enclosures – Probes for verification
SS 145-2	Specification for 13 A plugs and socket outlets – Part 2: 13 A switched and unswitched socket-outlets
SS 167	Specification for general purpose fuse links for domestic and similar purposes (primarily for use in plugs)

SS 358-5	Specification for polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 5: Flexible cables (cords)
SS CP 5	Code of practice for electrical installations