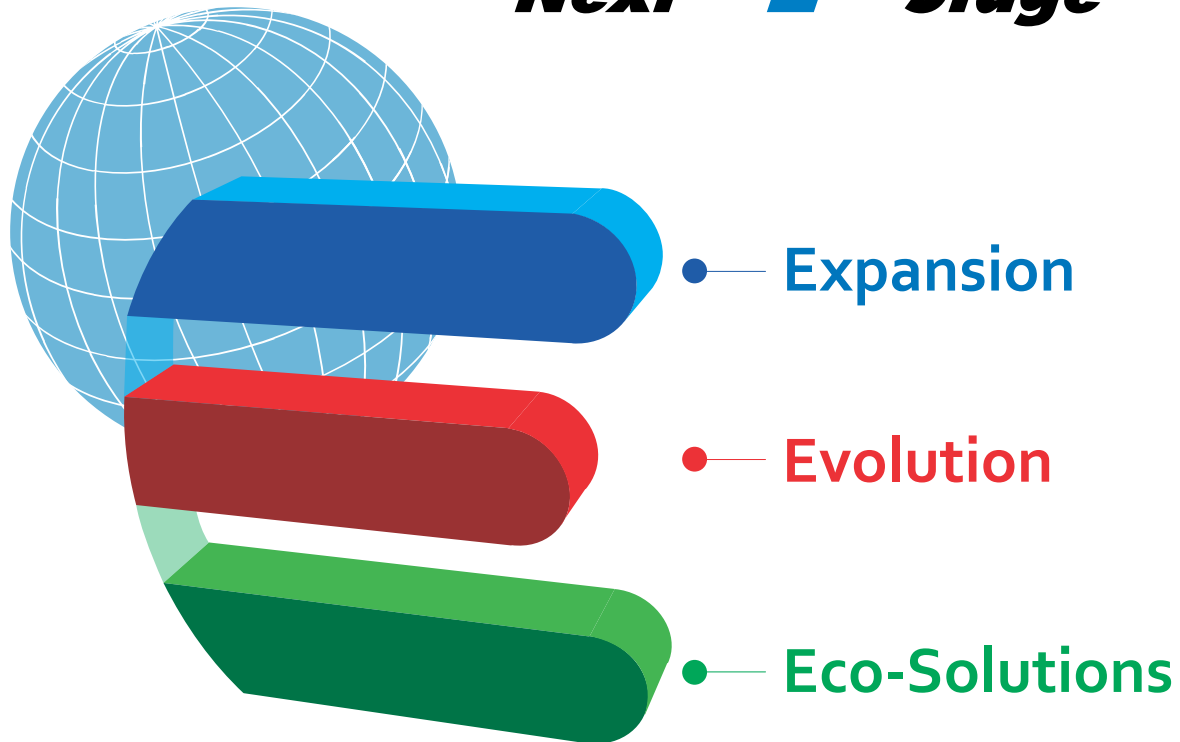


Intelligent Power Modules

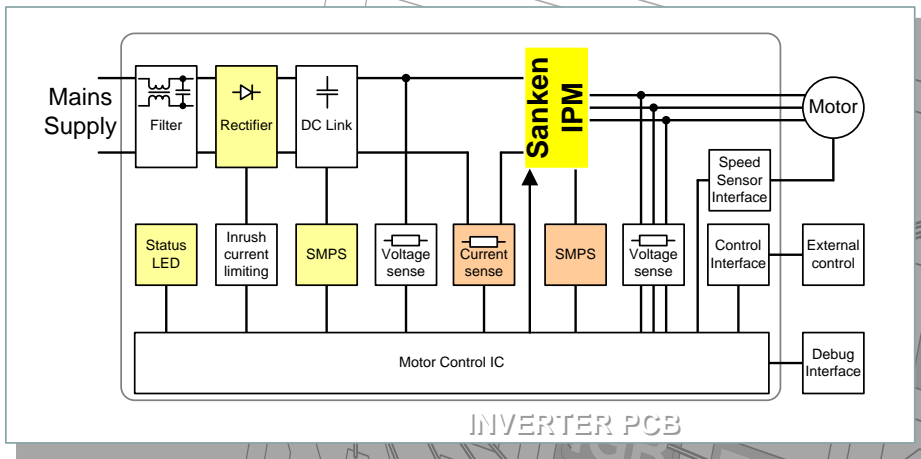
Power Electronics for Next "E" Stage



Oct 2012

All information contained herein is subject to change without prior notice.

Sanken Intelligent Power Modules combine all the necessary power components required for efficient running of three phase electric motors in a complete and compact module.

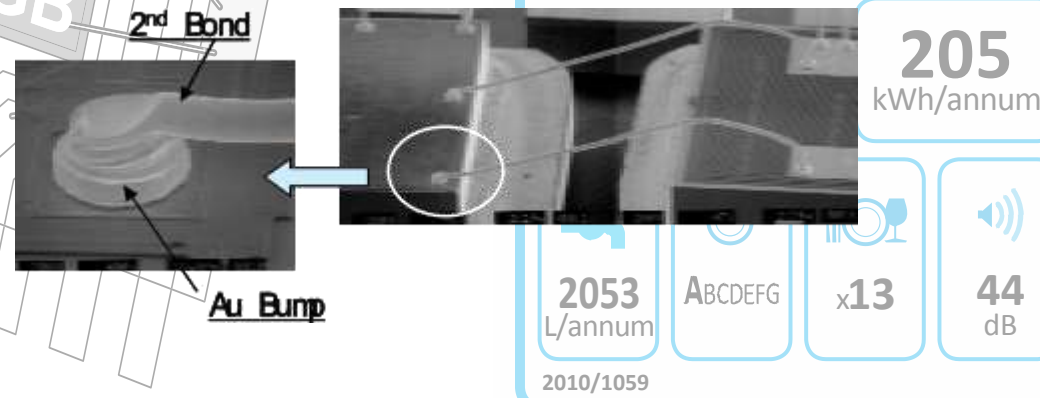
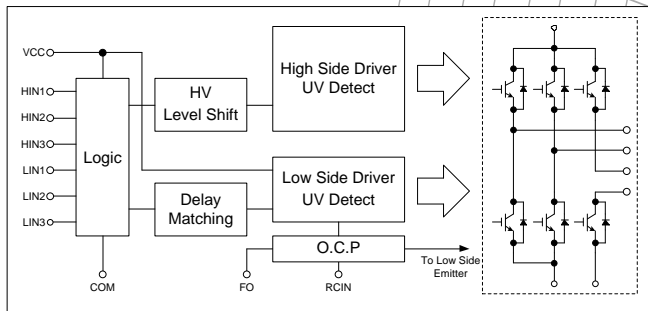


The latest addition of trench-type IGBTs with outstanding conduction and switching performance, makes Sanken's IPMs the ideal choice for modern energy efficient products.

Sanken's unique bonding technology (Bond stitch on ball) allows a compact substrate design.

By employing a multi-chip structure, excellent power losses, high temperature dissipation and improved surge breakdown capacity are achieved.

By combining three IGBT or MOSFET half bridge circuits, high-side & low-side drivers and adding protection / timing features, Sanken IPMs are simple to integrate and require only few external components.



ENERG

енергия · ενεργεια

Y

IA

IE

IA

A+++

A++

A+

A

B

C

D

A+++

205

kWh/annum

2053
L/annum





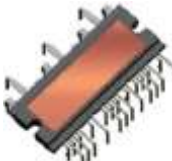
ABCDEFG

x13

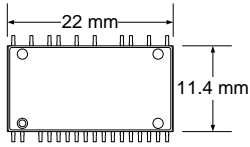
44
dB

2010/1059

Power Modules for Inverter Applications

	SX	SMA	SLA	SIM	SCM
Output current (cont., Tc=25degC)	1.5A to 3A	1A to 2.5A	1.5A to 5A	2A to 5A	5A to 30A
Approx. inverter output power (max)	105W	200W	365W	410W	Up to 1.5kW
3.3V Logic compatible	Yes	Option	Option	Yes	Yes
Under voltage protection	Yes	Yes	Yes	Yes	Yes
Over Current protection	Yes	Option	Option	Yes	Yes
Temperature shutdown protection	Yes	Option	Option	Yes	Option
Temperature monitor output	No	No	No	No	Option
3-shunt outputs	No	Option	Option	Yes	Option
Integrated boot strap diodes	Yes	Yes	Option	Yes	Yes
Package	SMD	SIP	SIP	DIP	DIP
Picture of the package					
Typical application	Circulation pump for central heating system; Fan for air conditioner; Fan for fridge; Drainage pump for dishw asher; Dosage and drainage pumps for washing machine	Fan, Fan for air conditioner; Circulation pump for dishw asher	Central Heating Fan and Pump, Fan for air conditioner, Pump for dishw asher, Compressor for fridge, Dryer, Kitchen Hood	Fan, Fan for air conditioner, Pump for dishw asher, Compressor for fridge	Compressor for fridge and air conditioner, Fan for air conditioner, Washing Machine, Door / Gate opener, Industrial Pumps

SX Range



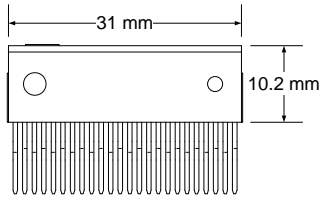
SOP27

Device Name	Marketing Status	Output Current	Break-down voltage	Power switch	RDS(on) Max [Ω] / Vsat (Typ) [V]	Features													
						3.3V logic	5V logic	UVLO	OCP	OCL	TD	TSD	TM	3 shunt	Heatsink Pad	Boot Diode	STP	7.5V Reg	Low Noise
SX68001MH	CS	2A	250V	MOSFET	1.5 Ω	■	■	■	■	■	-	■	-	-	-	■	-	■	-
SX68002MH	CS	1.5A	500V	MOSFET	4 Ω	■	■	■	■	■	-	■	-	-	-	■	-	■	-
SX68003MH	CS	2.5A	500V	MOSFET	2.4 Ω	■	■	■	■	■	-	■	-	-	-	■	-	■	-
SX68005MH	CS	3A	250V	MOSFET	0.5 Ω	■	■	■	■	■	-	■	-	-	-	■	-	■	-

Glossary

- UVLO Under-voltage lock-out
- OCP Over-current protection
- OCL Over-current limiter
- TD Over-temperature detection output
- TSD Thermal shutdown
- TM Temperature monitor output
- FO Fault output
- 3 shunt Output of each emitter /source
- Boot Diode Built-in bootstrap diodes
- STP Short-circuit protection
- 7.5VReg Built-in regulator output of 7.5V

SMA Range



Leadform 2451



Leadform 2452

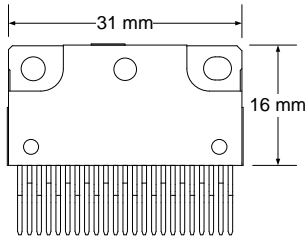
SMA24

Device Name	Marketing Status	Output Current	Break-down voltage	Power switch	RDS(on) Max [Ω] / Vsat (Typ) [V]	Features													
						3.3V logic	5V logic	UVLO	OCP	OCL	TD	TSD	TM	3 shunt	Heatsink Pad	Boot Diode	STP	7.5V Reg	Low Noise
SMA6820MX	CS	1A	500V	MOSFET	6 Ω	■	■	■	-	-	■	-	-	-	-	■	-	■	-
SMA6821MZ	Active	2A	250V	MOSFET	1.8 Ω	■	■	■	-	-	■	-	-	-	-	■	-	■	-
SMA6822MZ	Active	1.5A	500V	MOSFET	4 Ω	■	■	■	-	-	■	-	-	-	-	■	-	■	-
SMA6823MZ	Active	2.5A	500V	MOSFET	2.4 Ω	■	■	■	-	-	■	-	-	-	-	■	-	■	-
SMA6852MZ	Active	1.5A	500V	MOSFET	4 Ω	■	■	■	-	-	■	-	-	■	-	■	-	■	-
SMA6853MX	Active	2.5A	500V	MOSFET	2.4 Ω	■	■	■	-	-	■	-	-	■	-	■	-	■	-
SMA6854MZ	Active	1.5A	600V	MOSFET	3.5 Ω	■	■	■	-	-	■	-	-	■	-	■	-	■	-
SMA6860MZ	ES	1A	500V	MOSFET	6 Ω	-	■	■	■	■	-	■	-	-	-	■	-	-	-
SMA6861MZ	Active	2A	250V	MOSFET	1.8 Ω	-	■	■	■	■	-	■	-	-	-	■	-	-	-
SMA6862MZ	Active	1.5A	500V	MOSFET	4 Ω	-	■	■	■	■	-	■	-	-	-	■	-	-	-
SMA6863MZ	Active	2.5A	500V	MOSFET	2.4 Ω	-	■	■	■	■	-	■	-	-	-	■	-	-	-
SMA6864MZ	Active	2.5A	250V	MOSFET	0.5 Ω	-	■	■	■	■	-	■	-	-	-	■	-	-	-
SMA6865MZ	Active	2.5A	500V	MOSFET	1.7 Ω	-	■	■	■	■	-	■	-	-	-	■	-	-	-
SMA6874MZ	ES	1.5A	600V	MOSFET	3.25 Ω	-	■	■	■	■	-	■	-	-	-	■	-	-	-

Glossary

- UVLO Under-voltage lock-out
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- TD Over-temperature detection output
- TSD Thermal shutdown
- TM Temperature monitor output
- FO Fault output
- 3 shunt Output of each emitter /source
- Boot Diode Built-in bootstrap diodes
- STP Short-circuit protection
- 7.5VReg Built-in regulator output of 7.5V

SLA Range



Device Name	Marketing Status	Output Current	Break-down voltage	Power switch	RDS(on) Max [Ω] / Vsat (Typ) [V]	Features													
						3.3V logic	5V logic	UVLO	OC	OCL	TD	TSD	TM	3 shunt	Heatsink Pad	Boot Diode	STP	7.5V Reg	Low Noise
<u>SLA6806M</u>	ES	5A	600V	IGBT	1.75V	■	■	■	■	-	-	-	-	-	■	-	-	-	-
<u>SLA6816MZ</u>	CS	3A	600V	IGBT	1.75V	-	■	■	■	-	-	-	-	-	■	-	-	-	-
<u>SLA6845MZ</u>	Active	3A	600V	IGBT	1.75V	■	■	■	-	-	■	-	-	■	■	-	-	■	-
<u>SLA6867MZ</u>	CS	1.5A	500V	MOSFET	4 Ω	-	■	■	■	■	-	■	-	-	■	■	-	-	-
<u>SLA6868MZ</u>	Active	2.5A	500V	MOSFET	2.4 Ω	-	■	■	■	■	-	■	-	-	■	■	-	-	-
<u>SLA6870MZ</u>	Active	3A	500V	MOSFET	1.7 Ω	-	■	■	■	■	-	■	-	-	■	■	-	-	-



SLA23 (underlined parts)

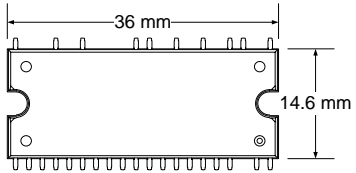


SLA24

Glossary

- UVLO** Under-voltage lock-out
- OC** Over-current protection
- OCL** Over-current limiter
- TD** Over-temperature detection output
- TSD** Thermal shutdown
- TM** Temperature monitor output
- FO** Fault output
- 3 shunt** Output of each emitter /source
- Boot Diode** Built-in bootstrap diodes
- STP** Short-circuit protection
- 7.5VReg** Built-in regulator output of 7.5V

SIM Range



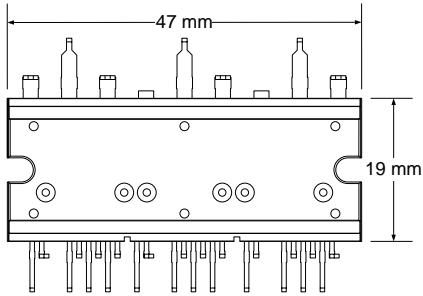
SOP40

Device Name	Marketing Status	Output Current	Break-down voltage	Power switch	RDS(on) Max [Ω] / Vsat (Typ) [V]	Features													
						3.3V logic	5V logic	UVLO	OCP	OCL	TD	TSD	TM	3 shunt	Heatsink Pad	Boot Diode	STP	7.5V Reg	Low Noise
SIM6802M	CS	3A	250V	MOSFET	0.5 Ω	■	■	■	■	■	-	■	-	■	-	■	-	-	-
SIM6811M	CS	2A	500V	MOSFET	4 Ω	■	■	■	■	■	-	■	-	■	-	■	-	-	-
SIM6812M	Active	2.5A	500V	MOSFET	2.4 Ω	■	■	■	■	■	-	■	-	■	-	■	-	-	-
SIM6813M	CS	3A	500V	MOSFET	1.7 Ω	■	■	■	■	■	-	■	-	■	-	■	-	-	■
SIM6814M	CS	4A	500V	MOSFET	1.45 Ω	■	■	■	■	■	-	■	-	■	-	■	-	-	-
SIM6816M	CS	2A	500V	MOSFET	4 Ω	■	■	■	■	■	-	■	-	■	-	■	-	-	■
SIM6817M	CS	2.5A	500V	MOSFET	2.4 Ω	■	■	■	■	■	-	■	-	■	-	■	-	-	■
SIM6818M	ES	3A	500V	MOSFET	1.7 Ω	■	■	■	■	■	-	■	-	■	-	■	-	-	■
SIM6821M	CS	2A	600V	MOSFET	3.5 Ω	■	■	■	■	■	-	■	-	■	-	■	-	-	-
SIM6822M	Active	5A	600V	IGBT	1.75V	■	■	■	■	■	-	■	-	■	-	■	-	-	-
SIM6827M	CS	5A	600V	IGBT	1.75V	■	■	■	■	■	-	■	-	■	-	■	-	-	■
SIM6832M	ES	2.5A	500V	MOSFET	2.4 Ω	■	■	■	■	■	-	■	-	■	-	■	-	-	-

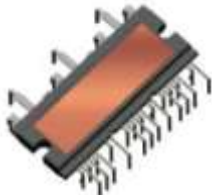
Glossary

- UVLO Under-voltage lock-out
- OCP Over-current protection
- OCL Over-current limiter
- TD Over-temperature detection output
- TSD Thermal shutdown
- TM Temperature monitor output
- FO Fault output
- 3 shunt Output of each emitter /source
- Boot Diode Built-in bootstrap diodes
- STP Short-circuit protection
- 7.5VReg Built-in regulator output of 7.5V

SCM Range



Fully molded
LF 2551



Heatsink pad
LF2552

SCM33

Device Name	Marketing Status	Output Current	Break-down voltage	Power switch	RDS(on) Max [Ω] / Vsat (Typ) [V]	Features													
						3.3V logic	5V logic	UVLO	OCP	OCL	TD	TSD	TM	3 shunt	Heatsink Pad	Boot Diode	STP	7.5V Reg	Low Noise
SCM1241M	Active	10A	600V	IGBT	1.7V	■	■	■	■	-	-	■	-	■	-	■	■	-	-
SCM1242M	Active	15A	600V	IGBT	1.7V	■	■	■	■	-	-	■	-	■	-	■	■	-	■
SCM1242MF	Active	15A	600V	IGBT	1.7V	■	■	■	■	-	-	■	-	■	■	■	■	-	■
SCM1243M	Active	15A	600V	IGBT	1.7V	■	■	■	■	-	-	■	-	■	-	■	■	-	-
SCM1243MF	Active	15A	600V	IGBT	1.7V	■	■	■	■	-	-	■	-	■	■	■	■	-	-
SCM1245MF	Active	20A	600V	IGBT	1.7V	■	■	■	■	-	-	■	-	■	■	■	■	-	-
SCM1246MF	Active	30A	600V	IGBT	1.7V	■	■	■	■	-	-	■	-	■	■	■	■	-	-
SCM1247MF	ES	30A	600V	IGBT	1.7V	■	■	■	■	-	-	■	-	■	■	■	■	-	■
SCM1248M	Active	5A	500V	MOSFET	0.8 Ω	■	■	■	■	-	-	■	-	■	-	■	■	-	-
SCM1249M	CS	10A	600V	IGBT	1.7V	■	■	■	■	-	-	■	-	-	-	■	■	-	-
SCM1250M	CS	10A	600V	IGBT	1.7V	■	■	■	■	-	-	■	-	■	-	■	■	-	■
SCM1251M	ES	10A	600V	IGBT	1.7V	■	■	■	■	-	-	■	-	■	-	■	■	-	■
SCM1263MF	ES	15A	600V	IGBT	1.7V	■	■	■	■	-	-	■	-	■	■	■	■	-	■
SCM1265MF	Active	20A	600V	IGBT	1.7V	■	■	■	■	-	-	■	-	■	■	■	■	-	■
SCM1272MF	ES	15A	600V	IGBT	1.7V	■	■	■	■	-	-	-	■	■	■	■	■	-	■
SCM1274MF	ES	20A	600V	IGBT	1.7V	■	■	■	■	-	-	-	■	■	■	■	■	-	■
SCM1276MF	CS	30A	600V	IGBT	1.7V	■	■	■	■	-	-	-	■	■	■	■	■	-	■

Glossary

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