

## Product brief

# CIPOS™ Mini IPM

600 V/4–30 A

Infineon's energy-efficient CIPOS™ Mini intelligent power modules (IPM) integrate various power and control components to increase reliability and optimize PCB size and system cost. This simplifies the power design and significantly reduces time to market. The CIPOS™ Mini IPM is designed to control AC motors in variable speed drives for applications such as air conditioning, washing machines, refrigerators, vacuum cleaners, compressors and industrial drives up to 3 kW.

The package concept is specially adapted to power applications that need good thermal conduction and electrical isolation, but also EMI-safe control, innovative FAULT indication and overload protection. Infineon's reverse-conducting IGBTs, TRENCHSTOP™ IGBTs, or CoolMOS™ Power MOSFETs are used with a new optimized Infineon SOI gate driver for excellent electrical performance.

## Applications

Broad range of applications from power factor correction (PFC) to inverter



## Key features

- > Fully isolated dual in-line molded module with fullpack and DCB
- > Current rating from 4 A to 30 A, power rating up to 3 kW
- > Application-specific performance
- > Very low thermal resistance with DCB
- > Reverse-conducting IGBTs with low  $V_{CE(sat)}$  and optimal anti-parallel diode for better EMI performance
- > TRENCHSTOP™ IGBTs with low  $V_{CE(sat)}$
- > CoolMOS™ Power MOSFET for high efficiency
- > Rugged 3-phase SOI gate driver technology with stability against transient and negative voltage
- > Matched propagation delay for all channels
- > Fast switching capability:  $f_{sw} \leq 20$  kHz
- > Fully compliant to 3.3 V and 5 V microcontrollers
- > Temperature sensor (optional)
- > Accessible FAULT pin
- > Undervoltage lockout at all channels
- > Cross-conduction prevention
- > Low-side emitter pins accessible for all phase current monitoring (open emitter)
- > Lead-free terminal plating, RoHS compliant

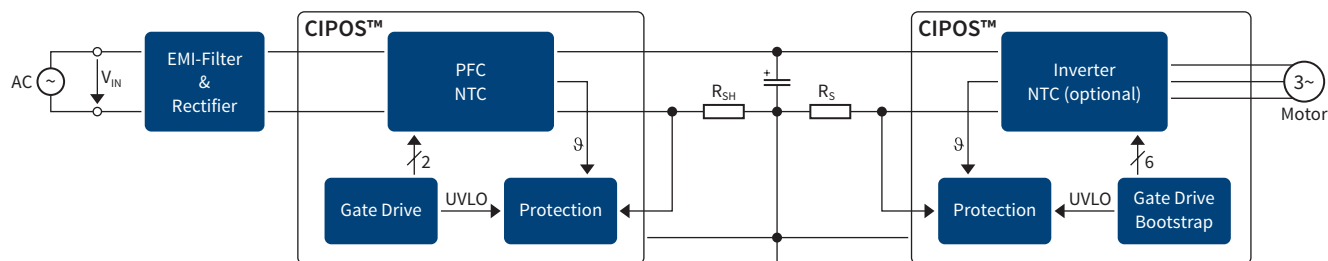


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## Block diagram



Product	Package	Voltage [V]	Nominal current @ 25 °C [A]	Power up to [kW]	$T_{jmax}$ [°C]	Built in thermistor	Remark
<b>3-phase inverter, open emitter, target applications: air conditioning, general motor drives</b>							
IGCM04F60xA	Mini FullPACK	600	4	0.6	150	optional <sup>1)</sup>	–
IGCM06F60xA	Mini FullPACK	600	6	0.8	150	optional	–
IGCM10F60xA	Mini FullPACK	600	10	1.2	150	optional	–
IGCM15F60xA	Mini FullPACK	600	15	1.2	150	optional	–
IGCM20F60xA	Mini FullPACK	600	20	1.6	150	optional	–
IKCM10L60xA	Mini FullPACK	600	10	1.2	150	optional	–
IKCM15L60xA	Mini FullPACK	600	15	1.6	150	optional	–
IKCM20L60xA	Mini FullPACK	600	20	1.8	150	optional	–
IKCM30F60xA	Mini FullPACK	600	30	2.0	150	optional	–
IKCM20L60xD	Mini DCB	600	20	2.4	150	optional	–
IKCM30F60xD	Mini DCB	600	30	2.6	150	optional	–
<b>3-phase inverter, open emitter, target applications: washing machines</b>							
IKCM10H60xA	Mini FullPACK	600	10	1.0	150	optional	–
IKCM15H60xA	Mini FullPACK	600	15	1.2	150	optional	–
<b>2-phase asymmetric inverter for switched reluctance motor drives, target applications: vacuum cleaners</b>							
IKCM15R60GD	Mini DCB	600	15	2.2	150	✓	–
IKCM20R60GD	Mini DCB	600	20	2.4	150	✓	–
<b>2-phase or 3-phase inverter, open source, with CoolMOS™ MOSFET, target applications: highly efficient refrigerators, low-power motor drives</b>							
IM512-L6A	Mini FullPACK	600	10	0.4	150	✓	2-phase/ $R_{DS(on)}$ (max.) = 0.31 $\Omega$
IM513-L6A	Mini FullPACK	600	10	0.6	150	✓	3-phase/ $R_{DS(on)}$ (max.) = 0.31 $\Omega$
<b>2-phase or 3-phase interleaved topology for PFC (Power Factor Correction), target applications: air conditioning, pumps, fans</b>							
IFCM20T65GD	Mini DCB	650	20	3.6	150	✓	2-phase
IFCM30T65GD	Mini DCB	650	30	5.4	150	✓	2-phase
IFCM20U65GD	Mini DCB	650	20	4.4	150	✓	3-phase
IFCM30U65GD	Mini DCB	650	30	6.4	150	✓	3-phase
<b>PFC (Power Factor Correction) integrated 3-phase inverter, with 20 kHz or 40 kHz PFC switching, target applications: air conditioning, pumps, fans</b>							
IFCM10P60GD	Mini DCB	600	10	1.2	150	✓	40 kHz
IFCM15P60GD	Mini DCB	600	15	1.8	150	✓	40 kHz
IFCM10S60GD	Mini DCB	600	10	1.2	150	✓	20 kHz
IFCM15S60GD	Mini DCB	600	15	1.8	150	✓	20 kHz

1) x = G (built in thermistor), x = H (no thermistor)

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