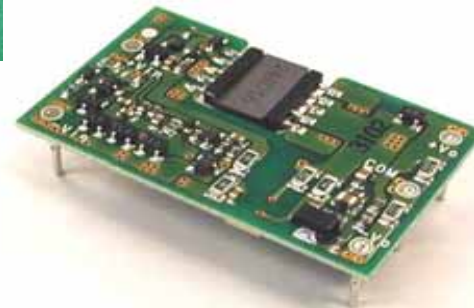
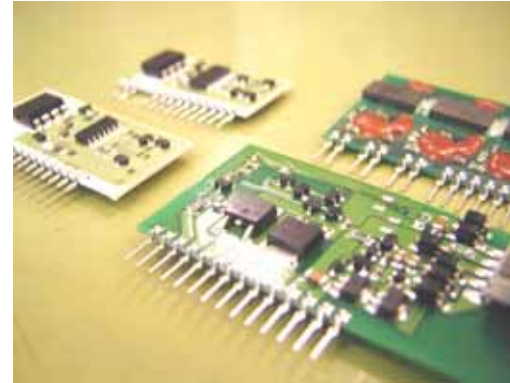
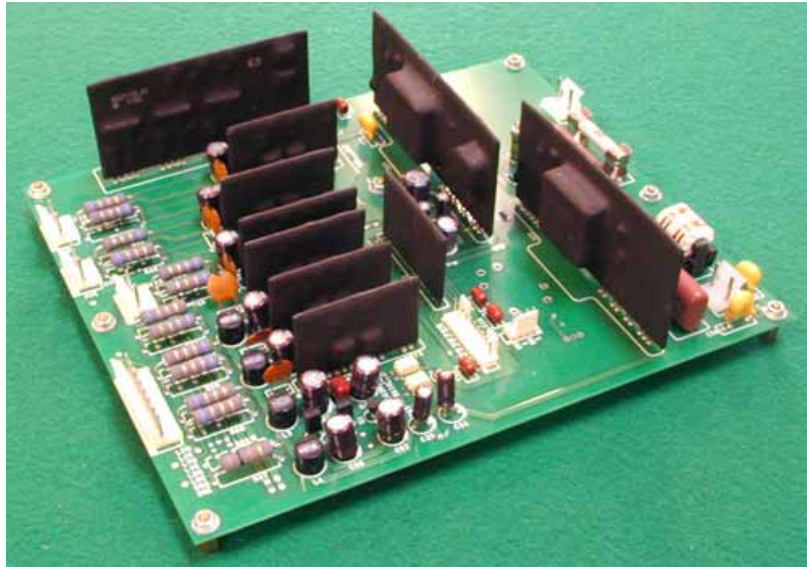

ISAHAYA Hybrid ICs

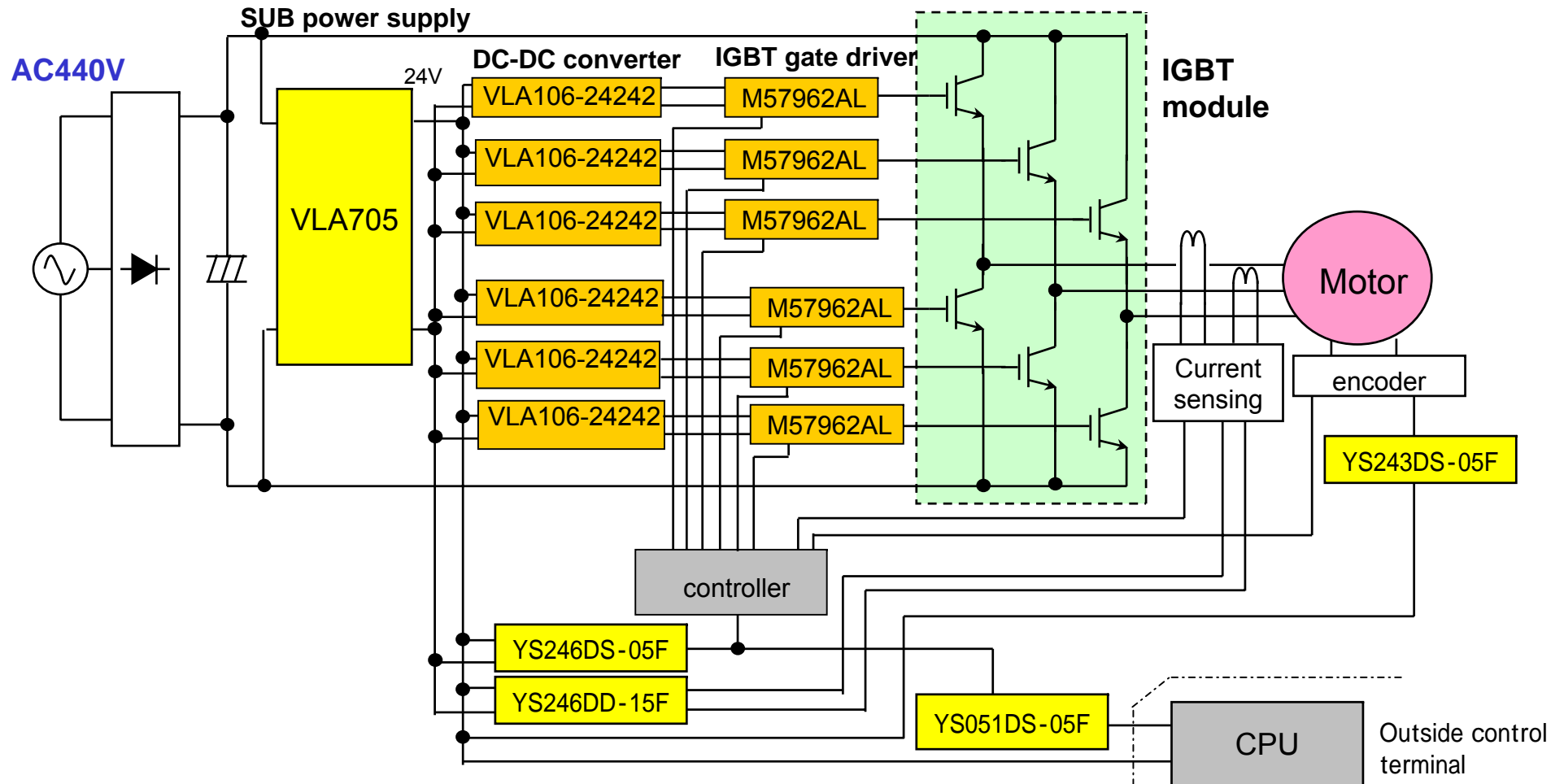


Jul.2004

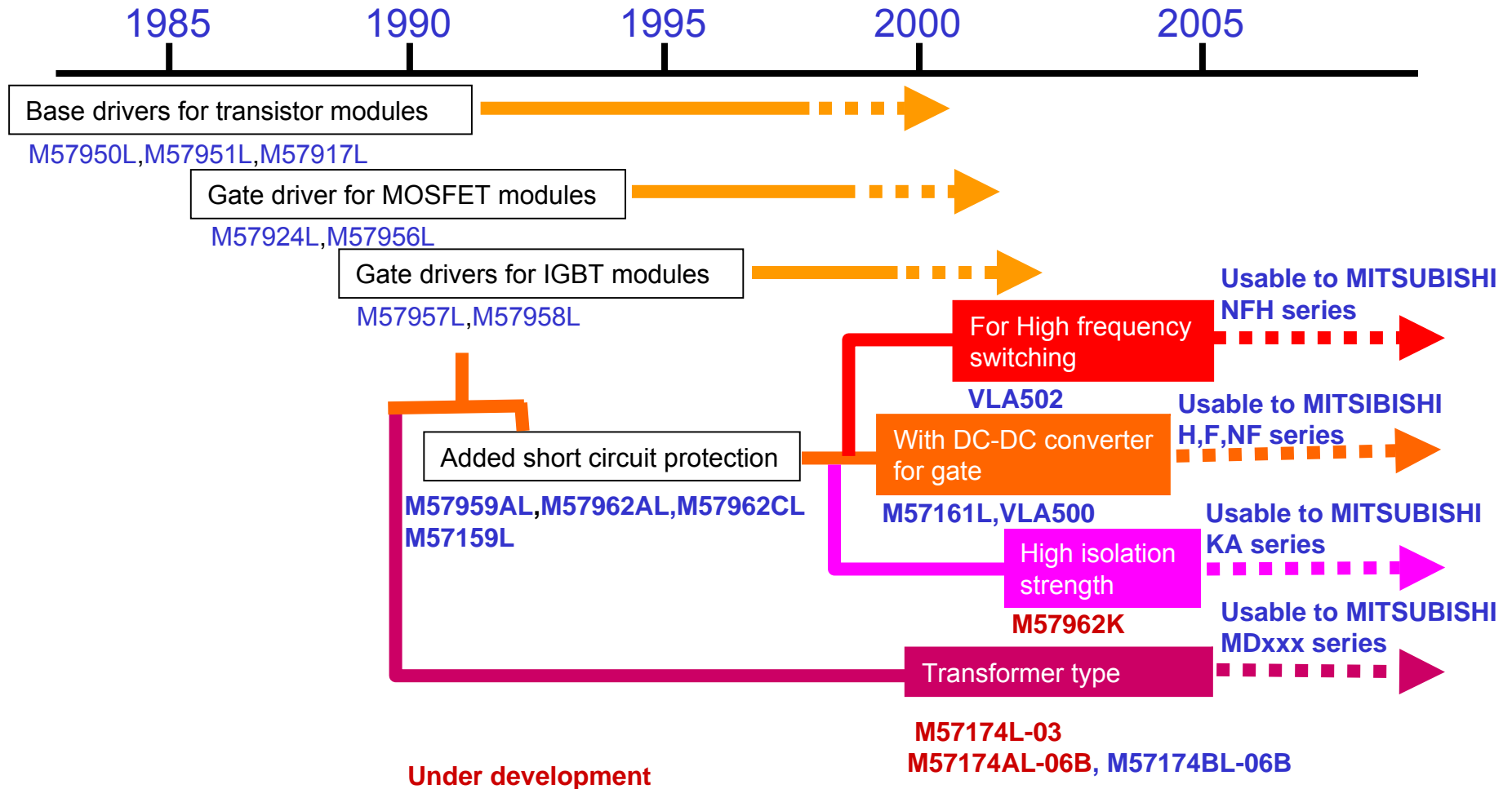
Contents

1. Application example of hybrid IC for inverter peripherals
2. IGBT gate drivers
3. DC-DC converters for inverters
4. SUB power supply

Peripherals of IGBT Module



IGBT gate drivers road map



Selection Map for Mitsubishi IGBT modules(1)

<For H series>

	15A	20A	30A	50A	75A	100A	150A	200A	300A	400A	600A	1000A
600V Class	M57159L							M57959AL	M57962AL,CL			
1200V Class	M57159L					M57959AL	M57962AL,CL			VLA500		
1400V Class	M57159L					M57959AL	M57962AL,CL			VLA500		

<For F series>

	50A	75A	100A	150A	200A	300A	400A	600A
600V Class	M57160AL							M57161L
1200V Class	M57160AL					M57161L		

Selection Map for Mitsubishi IGBT modules(2)

<For NF series>

	100A	150A	200A	300A	400A	600A	900A	1400A
600V Class		M57959AL		M57962AL,CL				
1200V class	M57959AL		M57962AL,CL			VLA500		

<For NFH series>

	100A	150A	200A	300A	400A	600A
600V Class			VLA502			
1200V class	VLA502					

Selection Map for Mitsubishi IGBT modules(2)

<For A series>

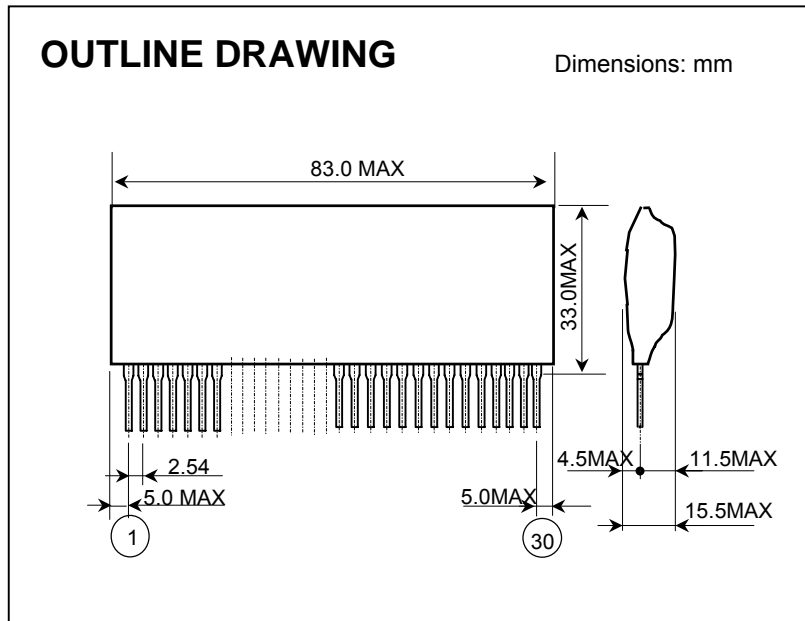
	100A	150A	200A	300A	400A	600A
1200V class	M57959AL			M57962AL,CL		

<For KA series>

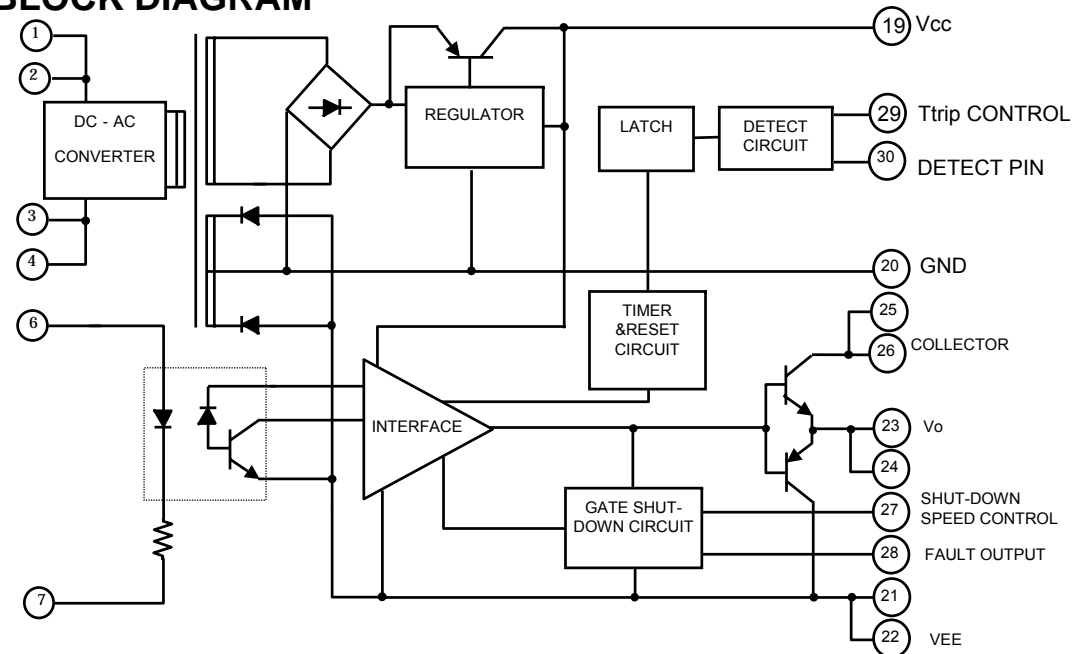
	50A	75A	100A	150A	200A	300A	400A
1700V Class	M57962K						

Power Supply built-in type IGBT Driver "VLA500"

VLA500-01



BLOCK DIAGRAM

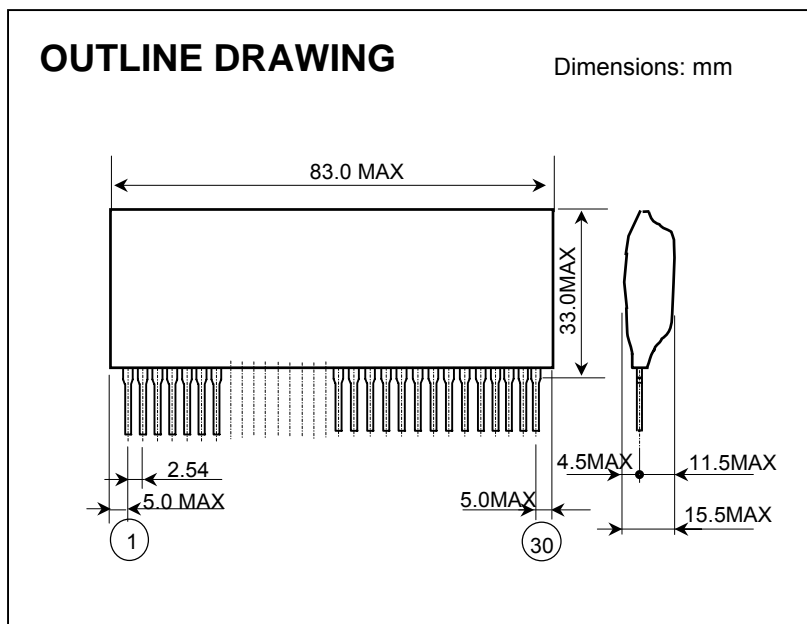


FEATURES

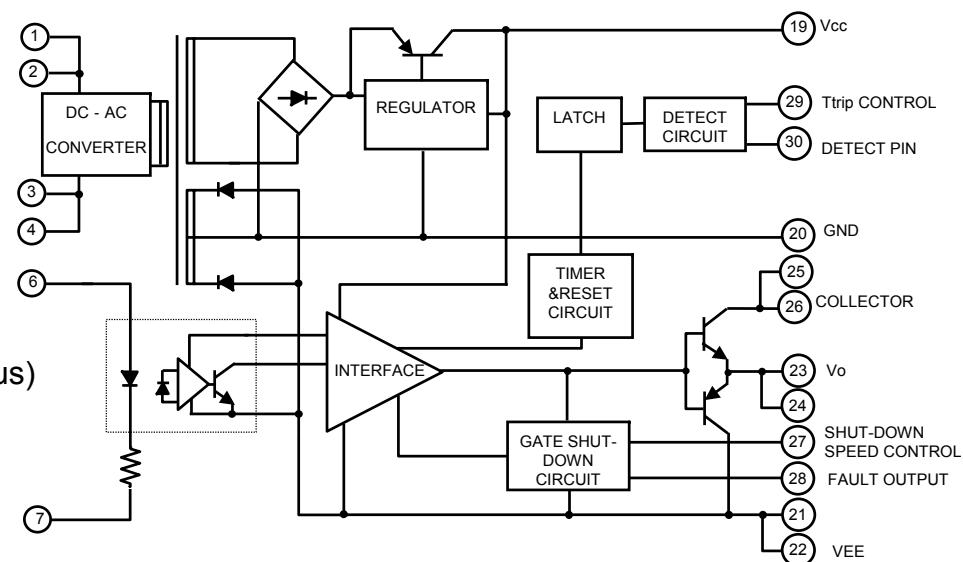
- (1) Built in the isolated DC-DC converter for gate drive
- (2) Simple design of peripheral circuit
- (3) SIP outline allows more space on mounting area
- (4) Built in short circuit protection

High speed type IGBT Driver "VLA502"

VLA502-01



BLOCK DIAGRAM



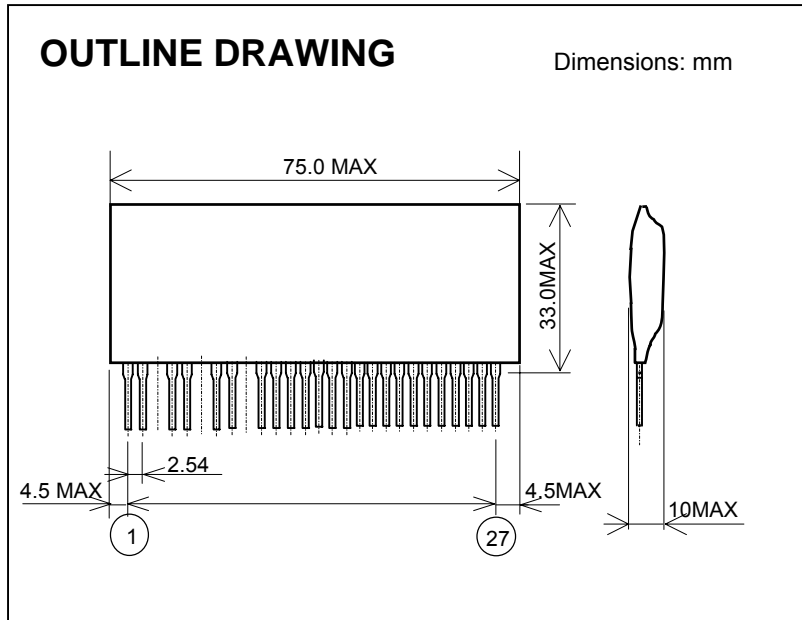
FEATURES

- (1) High speed switching (Propagation delay time : Typ 0.4us)
- (2) Built in the isolated DC-DC converter for gate drive
- (3) SIP outline allows more space on mounting area
- (4) Isolation strength : 2500Vrms, 1min.

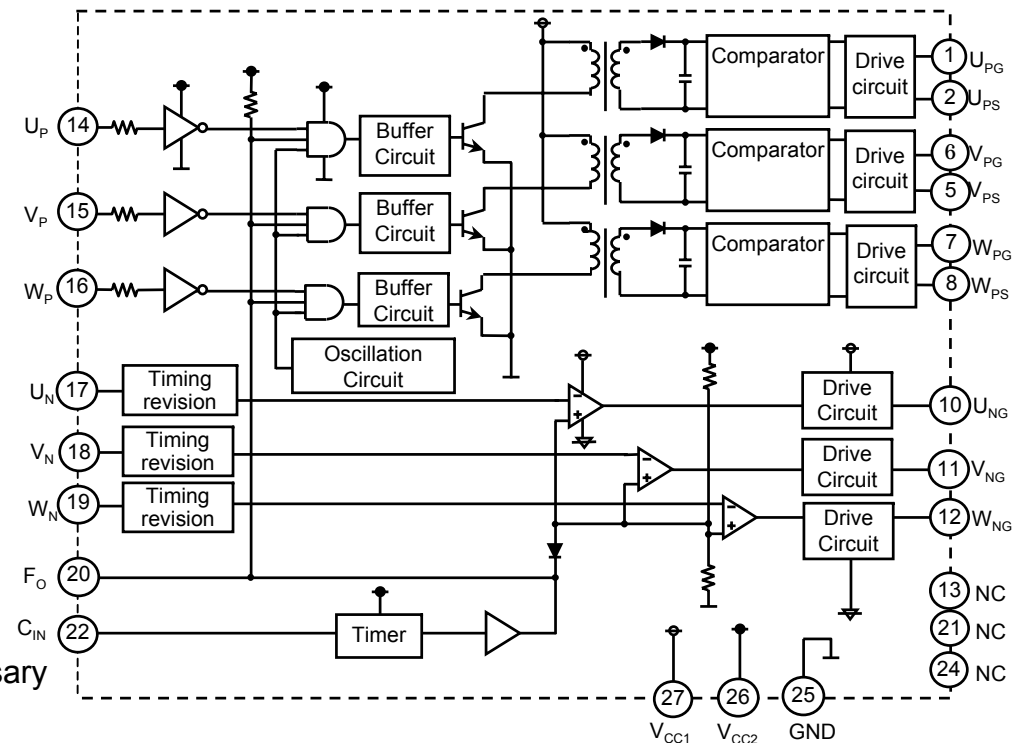
All in one driver for IGBT modules

M57174BL-06B

NEW PRODUCT



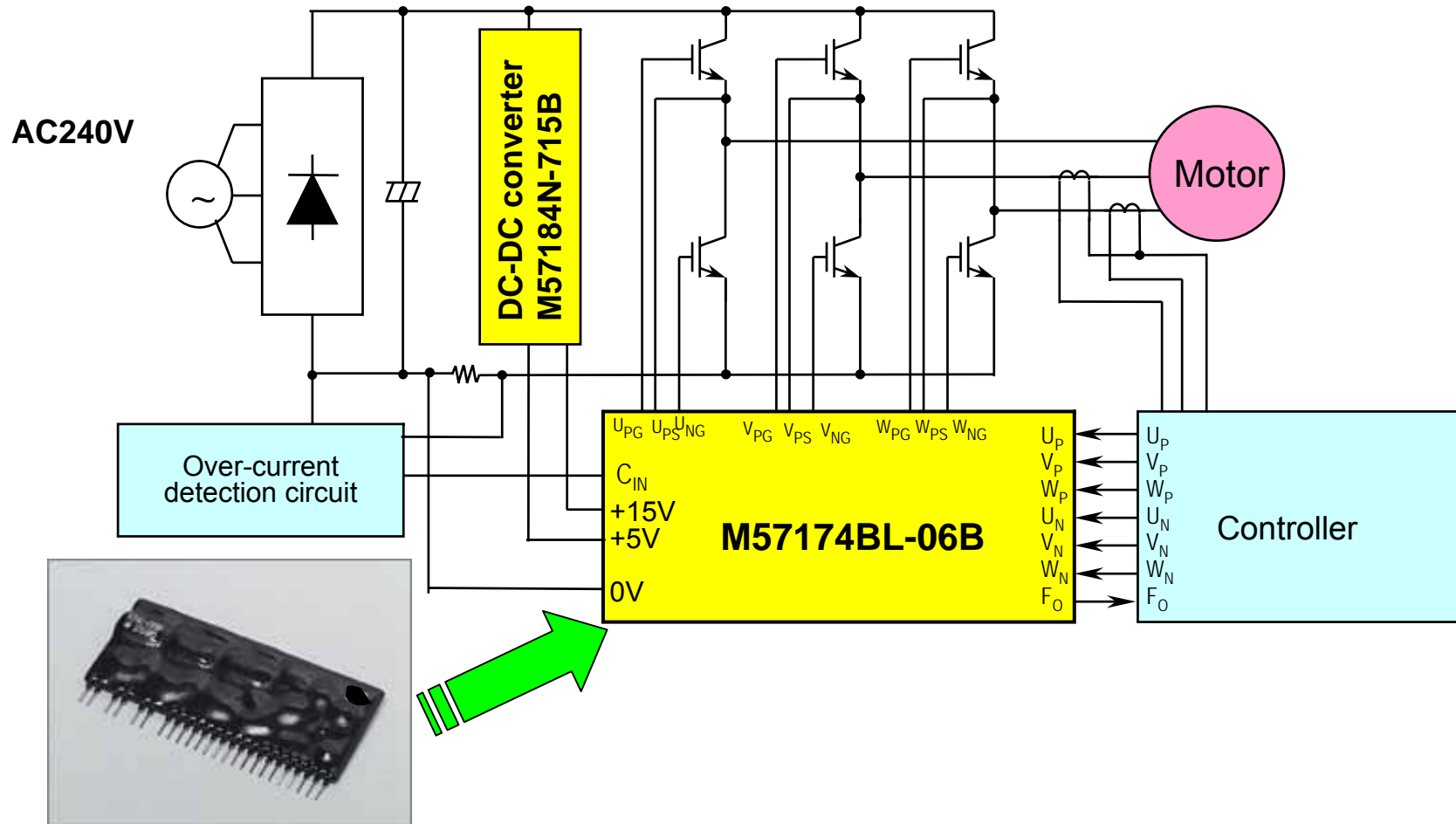
BLOCK DIAGRAM



FEATURES

- (1) Not using the opt-coupler
- (2) The power supply for high side gate drive is unnecessary
- (3) SIP outline allows more space on mounting area
- (4) High side isolation strength : 600VDC, 1min.

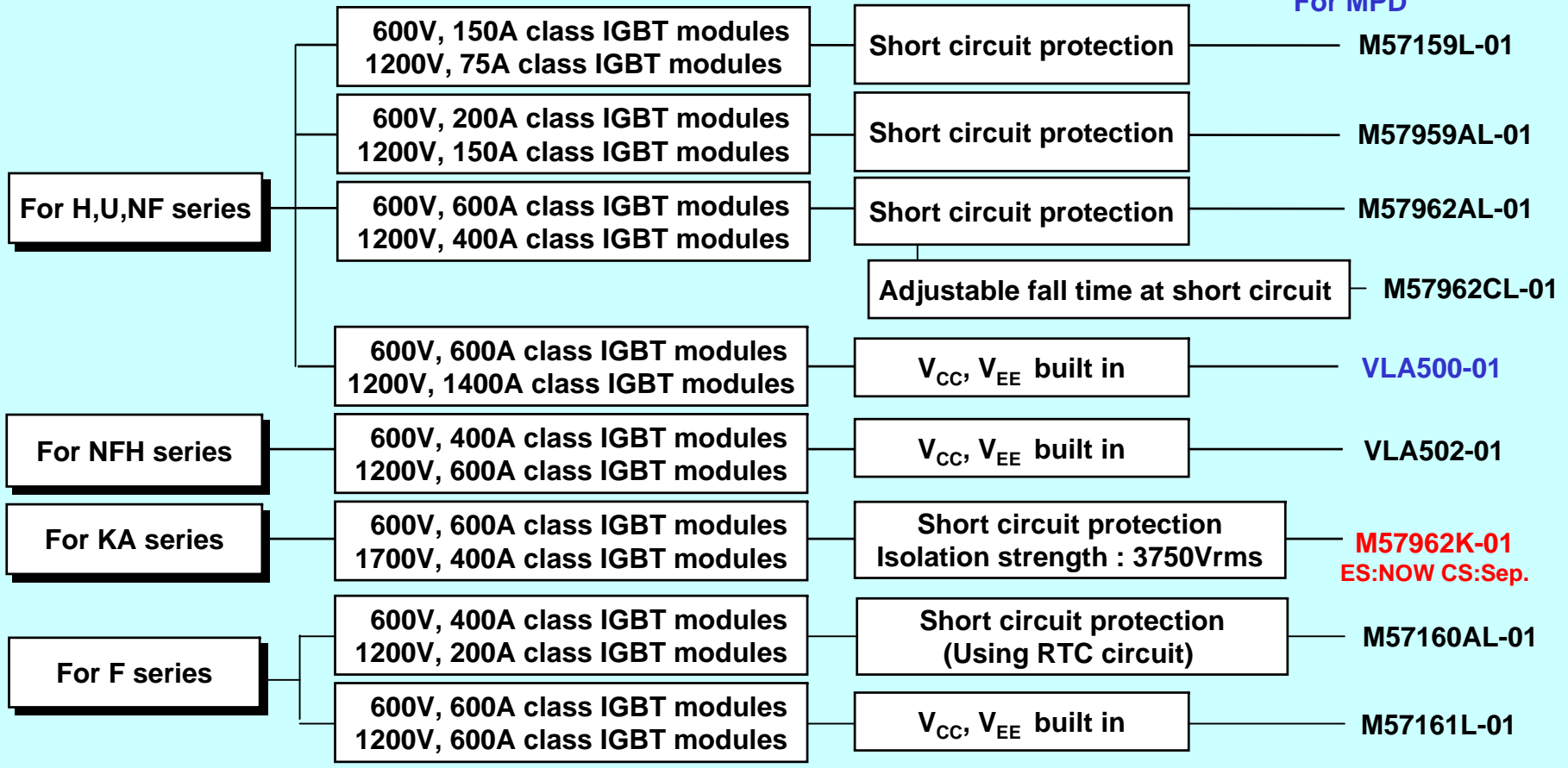
Application of M57174BL-06B



IGBT gate driver family(1)

For IGBT gate drive

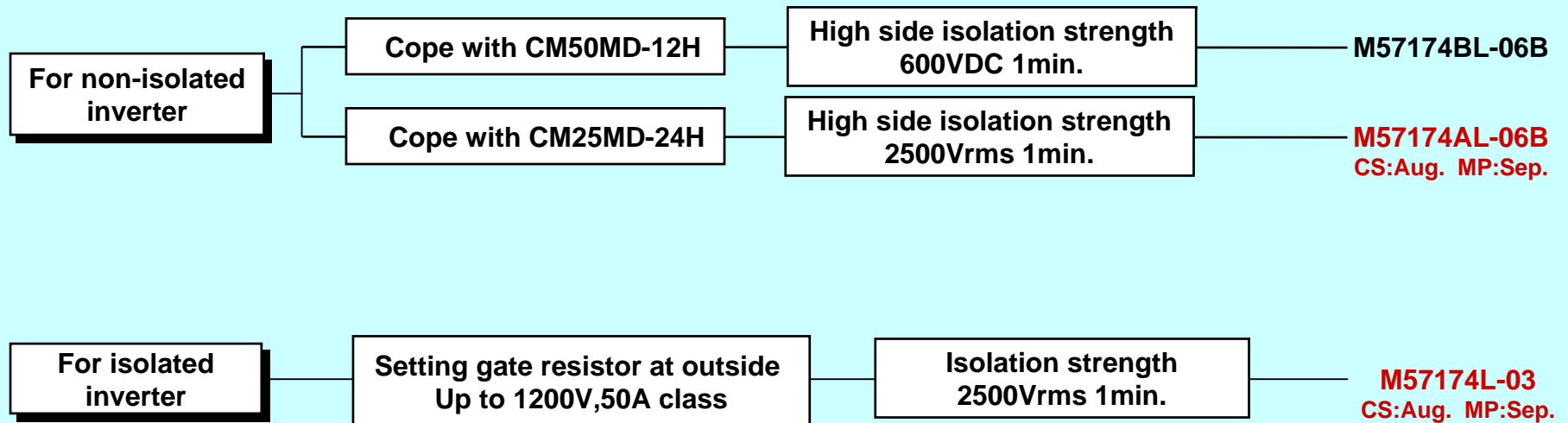
Under development
For MPD



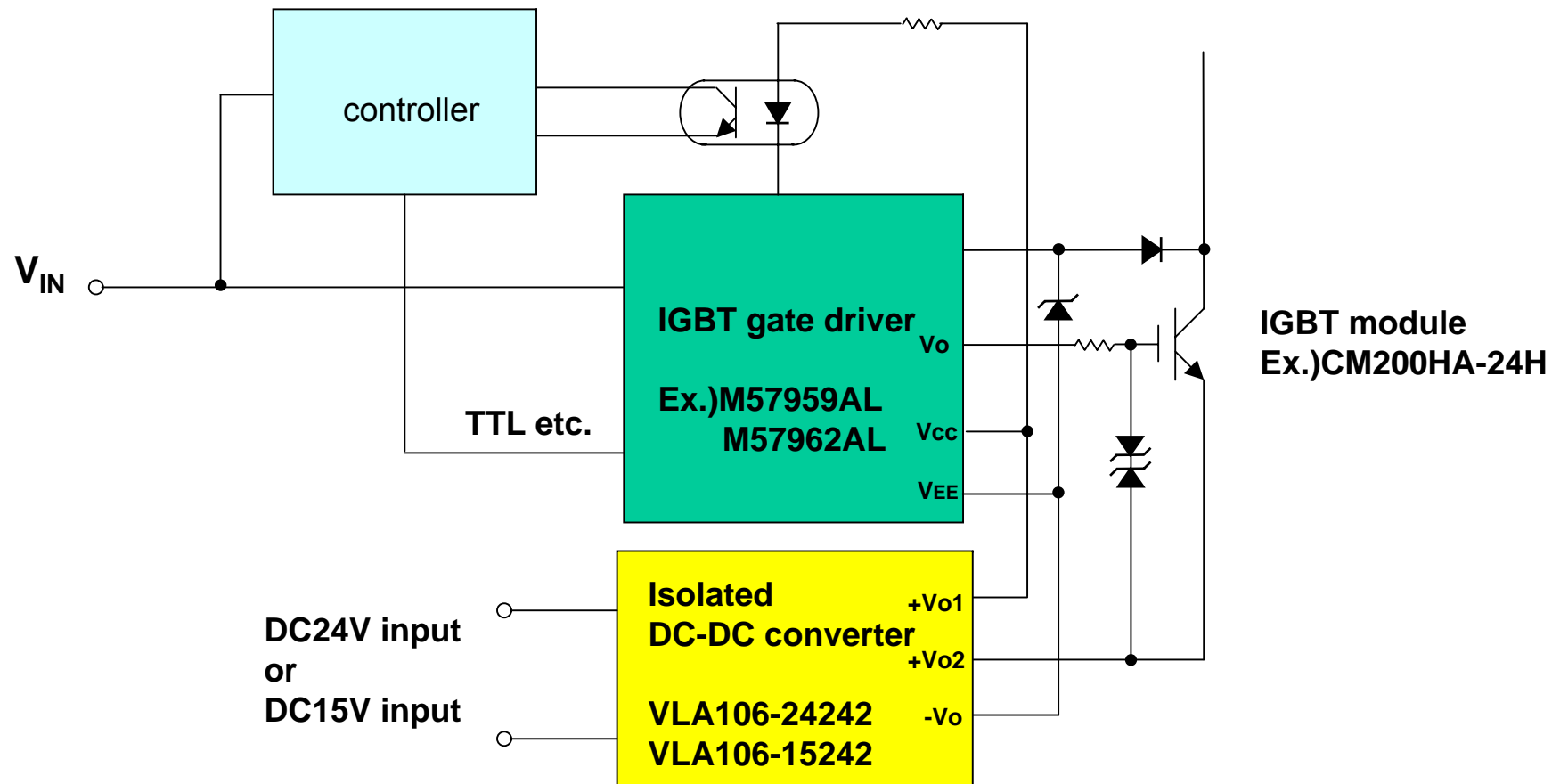
IGBT gate driver family(2)

For IGBT gate drive

Under development



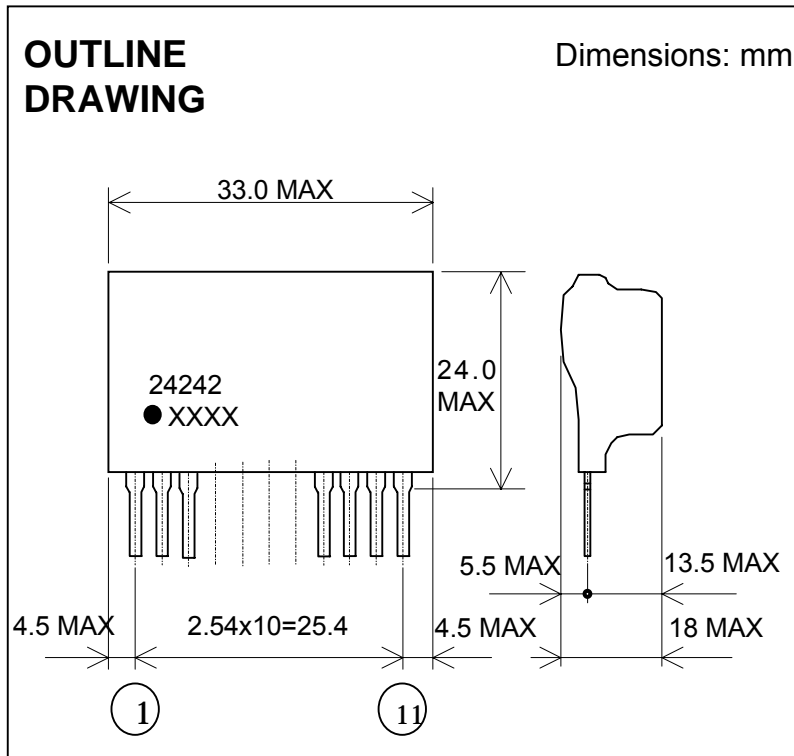
To Drive IGBT Module



Isolated DC-DC converter



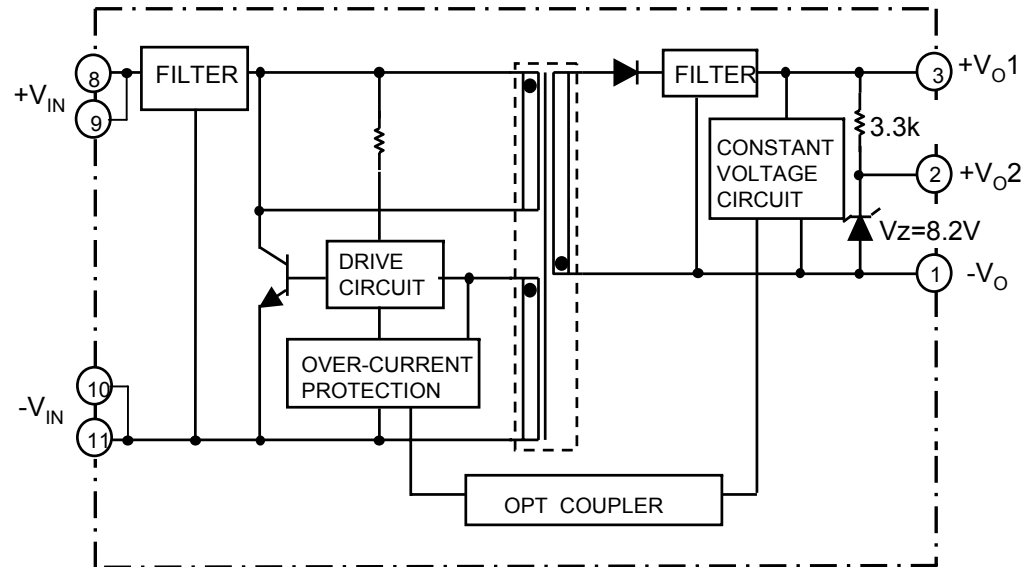
VLA106-24242



FEATURES

- Input voltage range: 21.6 to 26.4V DC
- Output: +24V, 100mA (output power : 2.4W)
(Can separate +16V,-8V for Vcc and VEE)
- Thin-profile and lightweight design
- Isolation between input and output : 2500Vrms, 1min
- Built-in over-current protection circuit
- Pin compatible to M57145L-01,-02

BLOCK DIAGRAM

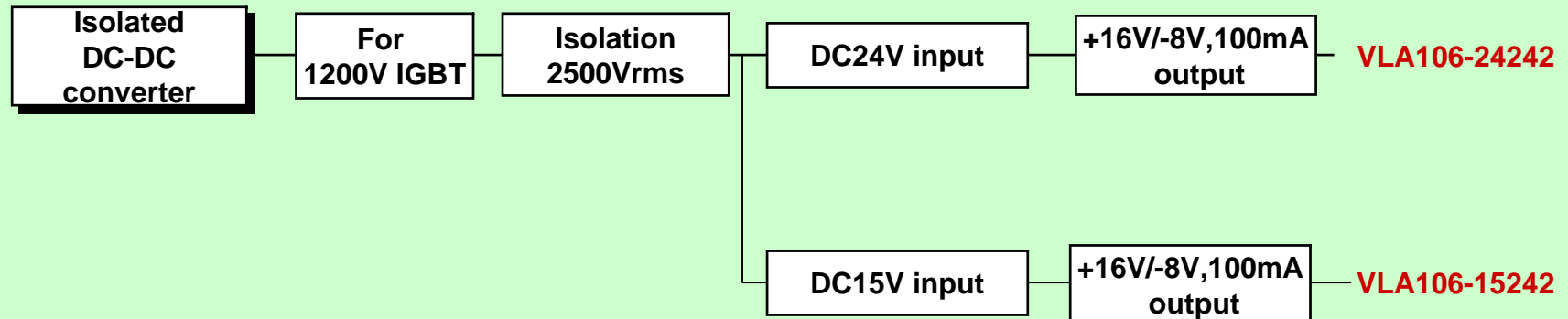


ES:NOW CS:NOW MP:'04/7

DC-DC converter for IGBT gate drive

For IGBT

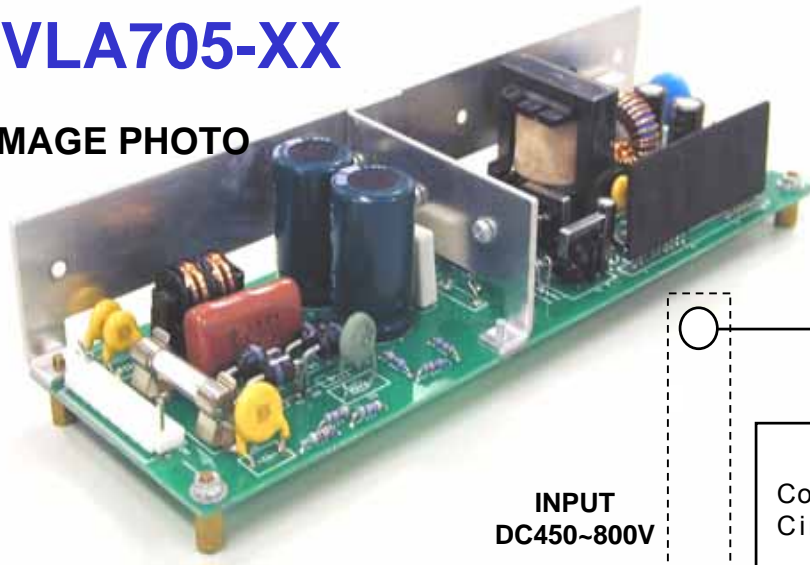
Under development



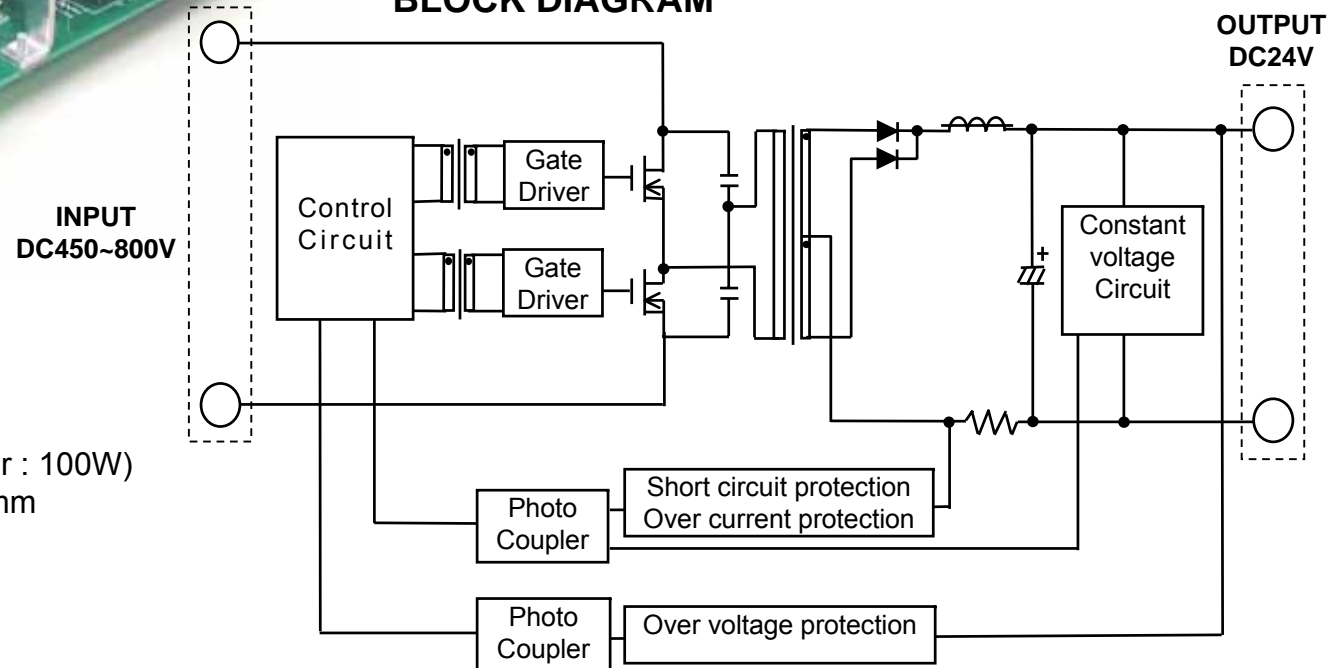
100W power supply for AC440V system (DC-DC converter)

VLA705-XX

IMAGE PHOTO



BLOCK DIAGRAM



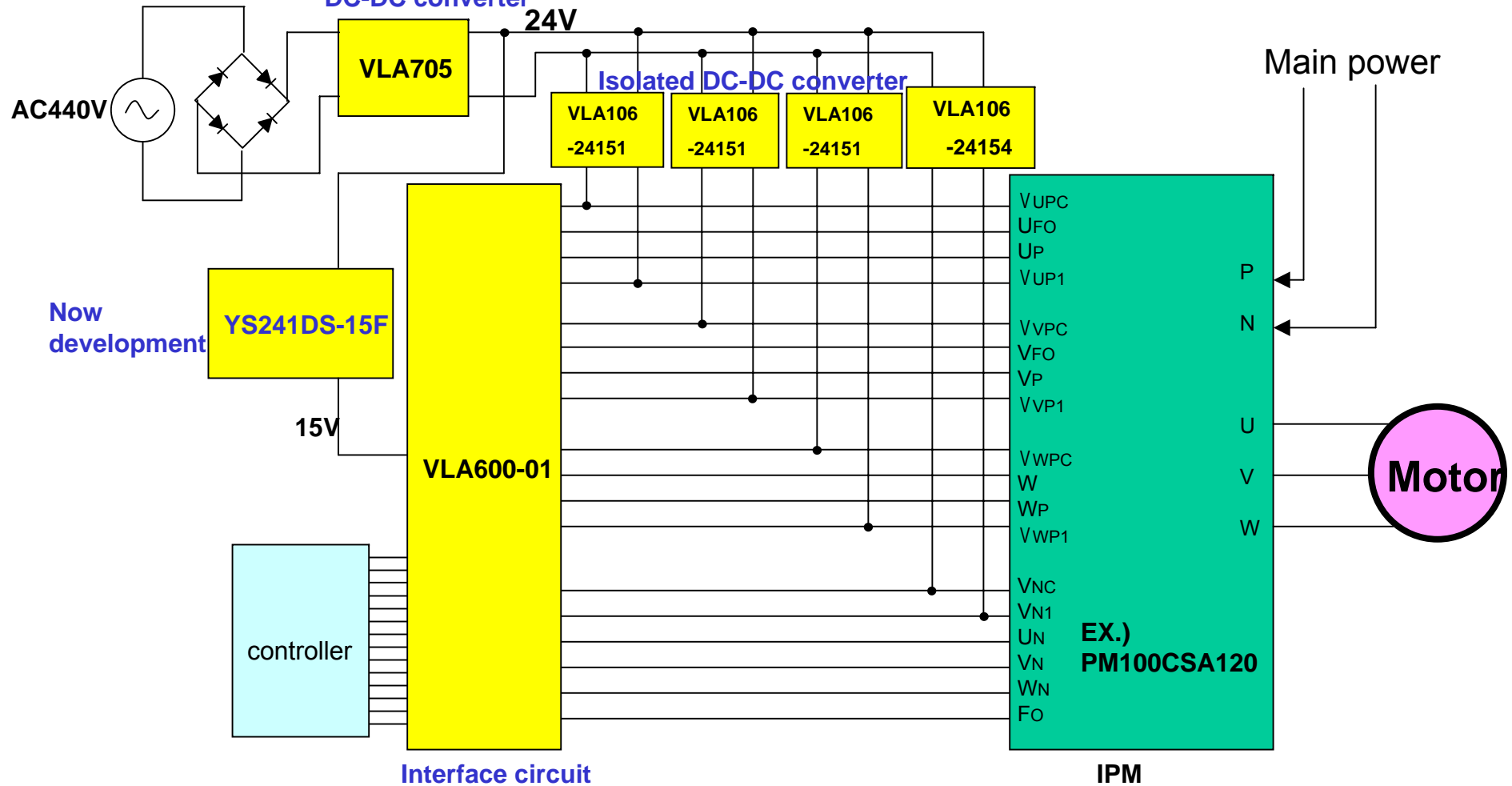
FEATURES

- Input voltage: DC450V~800V
- Output : +24V, 4.2A (Output power : 100W)
- Size : L x W x H = 180 x 70 x 45 mm
- Isolation strength : 2500Vrms
- Over current protection
- Over voltage protection

AC440V system

Isolated DC-DC converter

To Drive IPM (2)



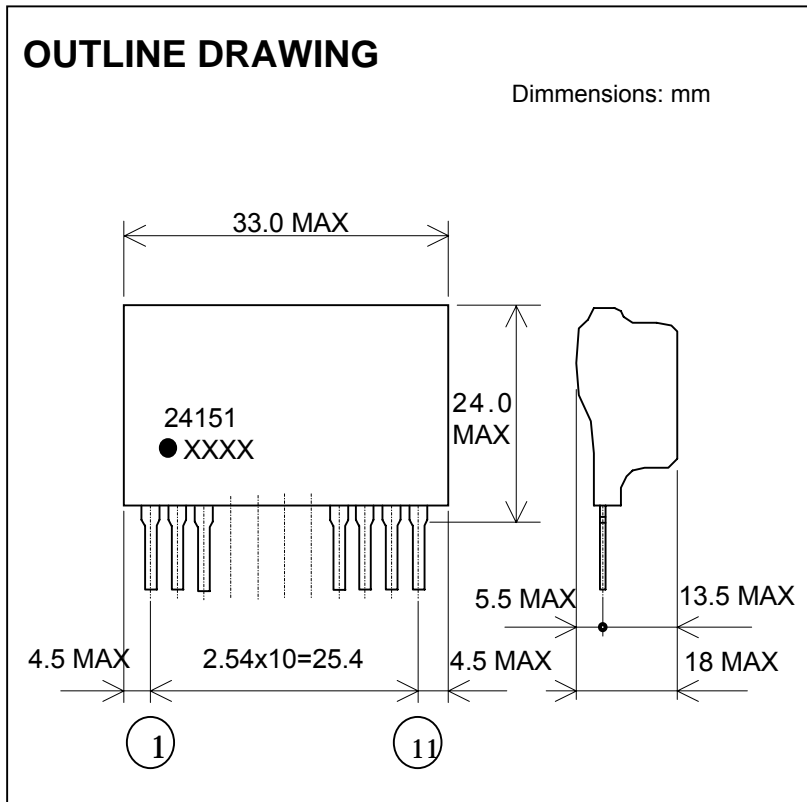
Isolated DC-DC converter



VLA106-24151

OUTLINE DRAWING

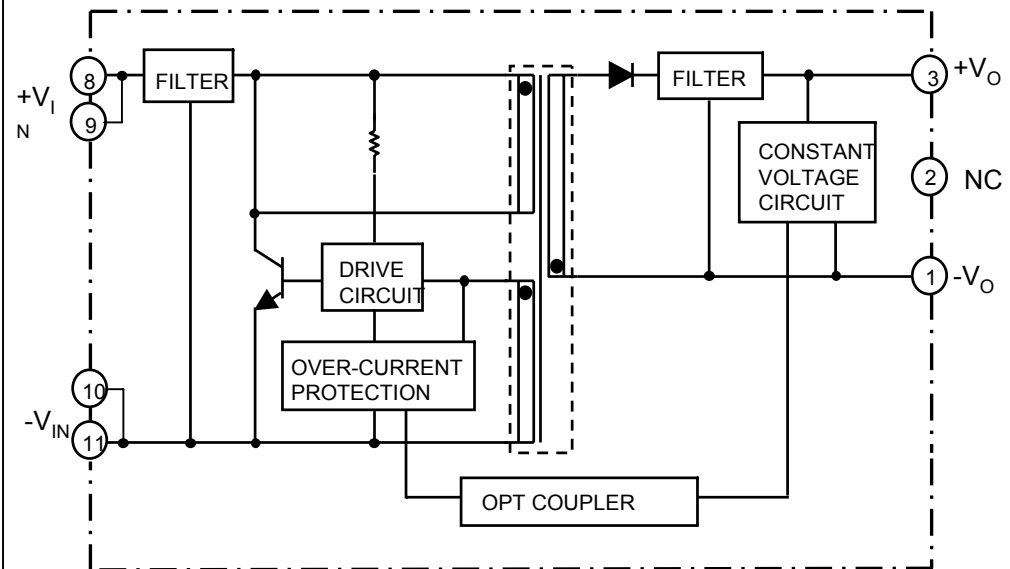
Dimensions: mm



FEATURES

- Input voltage range: 21.6 to 26.4V DC
- Output: **+15V**, **100mA** (output power : 1.5W)
- Thin-profile and lightweight design
- Isolation between input and output : 2500Vrms, 1min
- Built-in over-current protection circuit

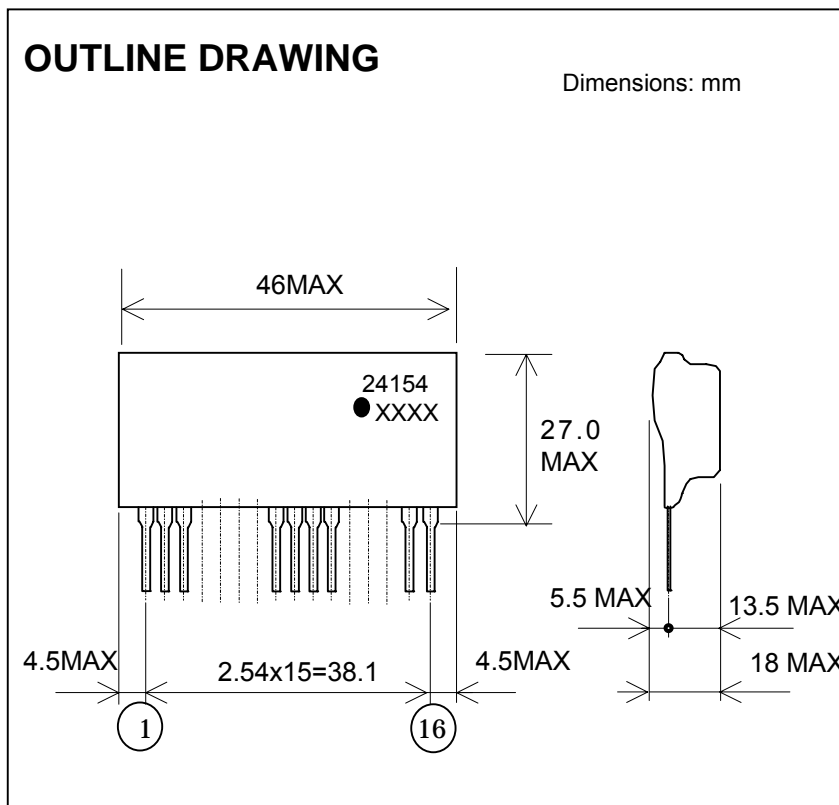
BLOCK DIAGRAM



Isolated DC-DC converter

NEW PRODUCT

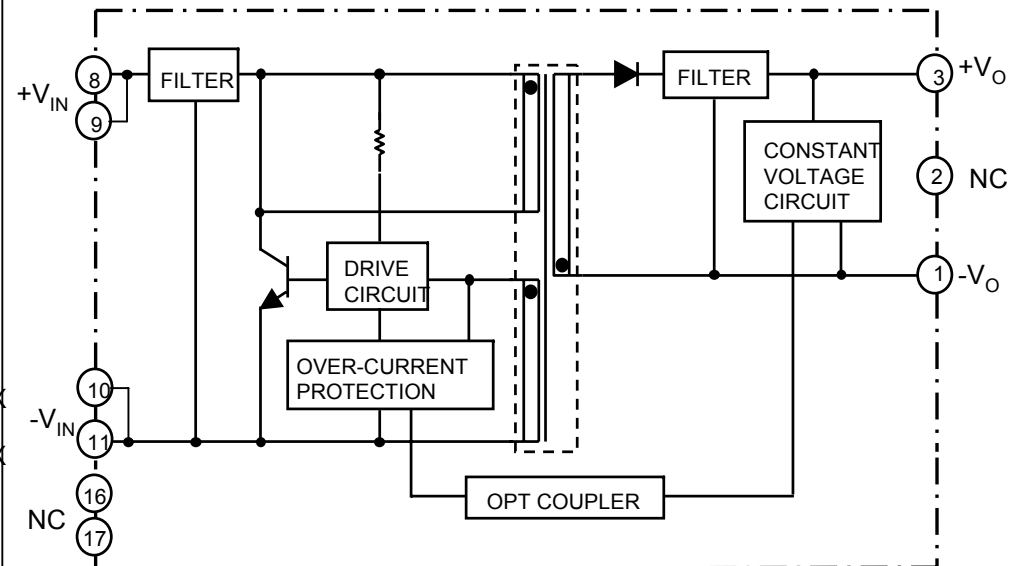
VLA106-24154



FEATURES

- Input voltage range: 21.6 to 26.4V DC
- Output: +15V, 300mA (output power : 4.5W)
- Thin-profile and lightweight design
- Isolation between input and output : 2500Vrms, 1min
- Built-in over-current protection circuit

BLOCK DIAGRAM



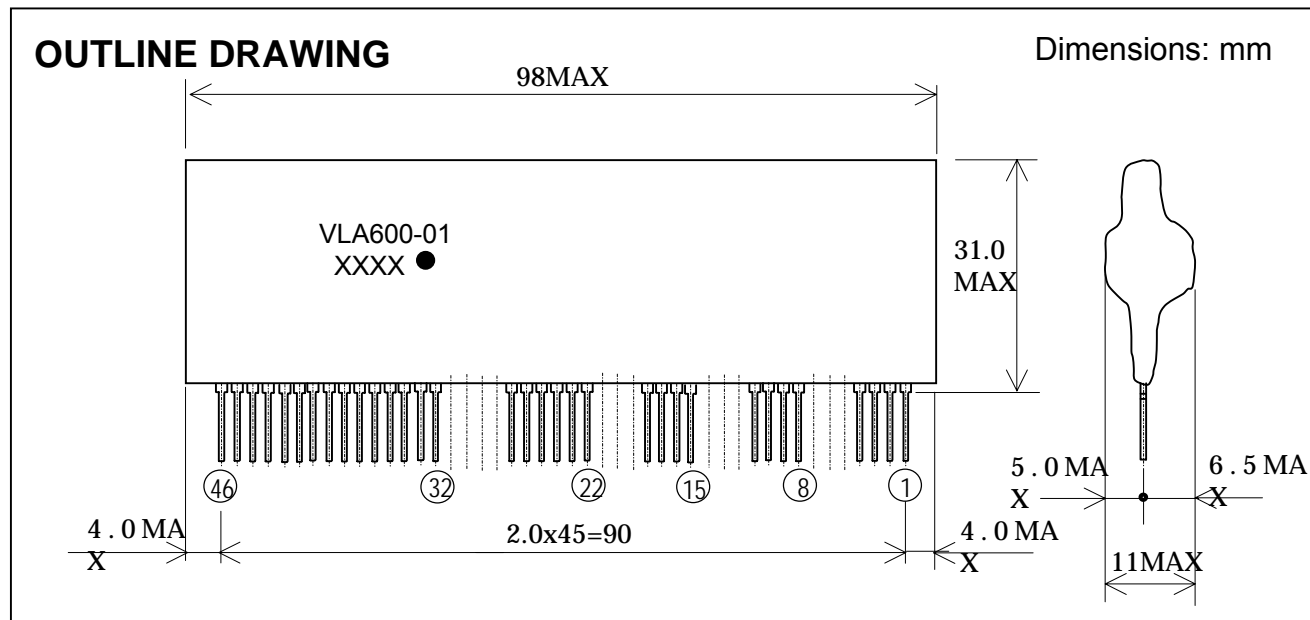
VLA600-01

IPM interface module



FEATURES

- Containing 6 opt-couplers for IPM drive and 4 opt-couplers for FAULT signal for 3 phase inverter
- With diodes for protection from reverse input voltage
- SIL structure to save the space
- Pin arrangement fit IPM's pin assign
- High speed, high CMR opt-couplers (for drive)
- High CTR opt-couplers (for FAULT signal)
- The Isolation voltage between primary and secondary is 2500Vrms(1 min.)

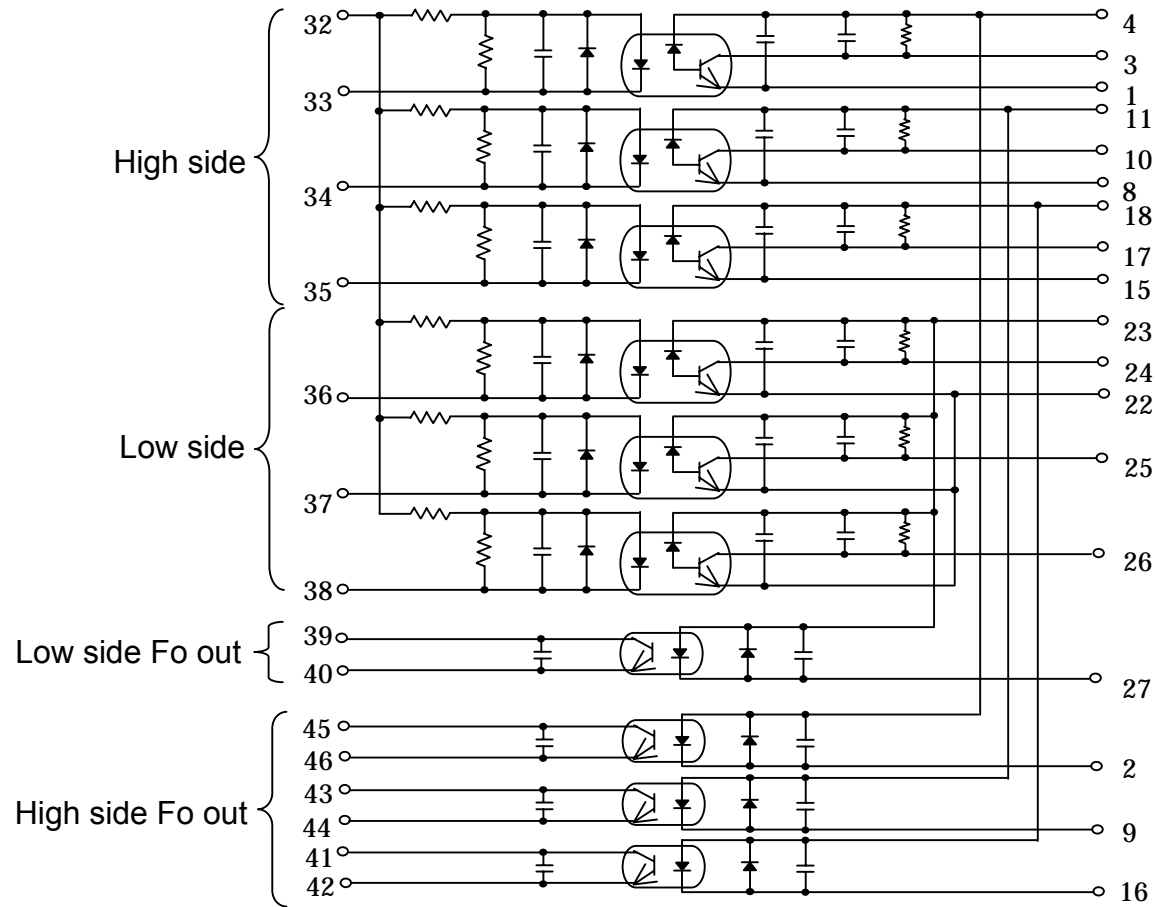


VLA600-01

IPM interface module



EQUIVALENT CIRCUIT



YS-F series

Under development

Isolated DC-DC converter

