

PS21964-4S

TRANSFER-MOLD TYPE
INSULATED TYPE

PS21964-4S



INTEGRATED POWER FUNCTIONS

600V/15A low-loss 5th generation IGBT inverter bridge for three phase DC-to-AC power conversion.
Open emitter type.

INTEGRATED DRIVE, PROTECTION AND SYSTEM CONTROL FUNCTIONS

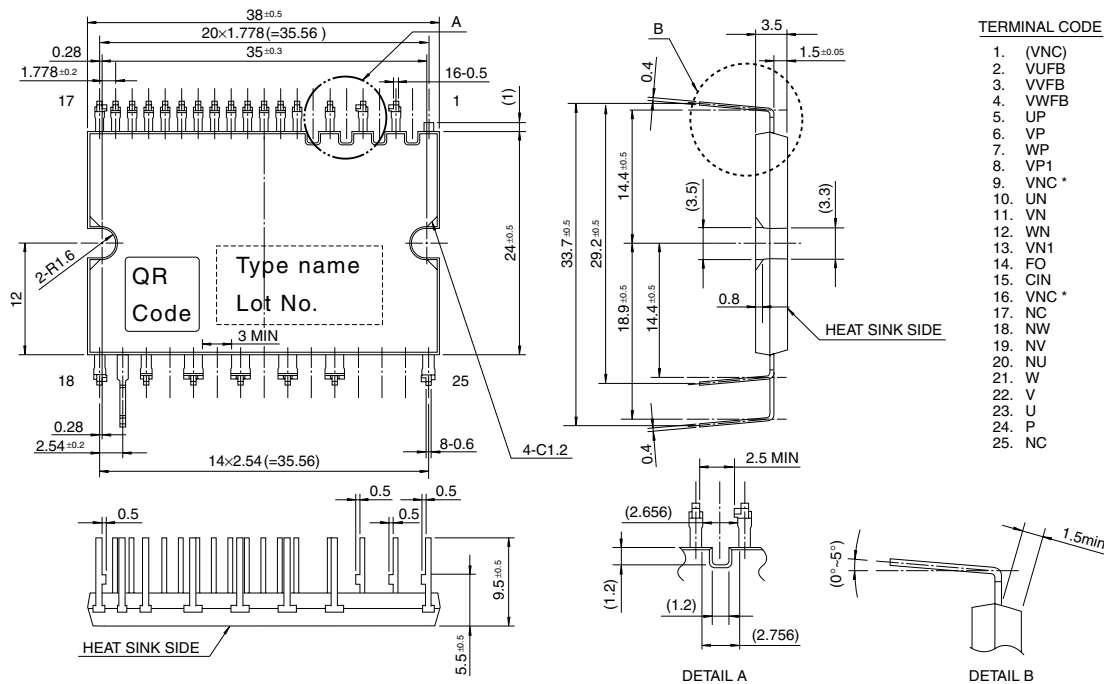
- For upper-leg IGBTs : Drive circuit, High voltage high-speed level shifting, Control supply under-voltage (UV) protection.
- For lower-leg IGBTs : Drive circuit, Control supply under-voltage protection (UV), Short circuit protection (SC).
- Fault signaling : Corresponding to an SC fault (Lower-leg IGBT) or a UV fault (Lower-side supply).
- Input interface : 3V, 5V line (High Active).
- UL Approved : Yellow Card No. E80276

APPLICATION

AC100V~200V inverter drive for small power motor control.

Fig. 1 PACKAGE OUTLINES

Dimensions in mm



*) Two VNC terminals (9 & 16 pin) are connected inside DIP-IPM, please connect either one to the 15V power supply GND outside and leave another one open.

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MAXIMUM RATINGS ($T_j = 25^\circ\text{C}$, unless otherwise noted)

INVERTER PART

Symbol	Parameter	Condition	Ratings	Unit
V _{CC}	Supply voltage	Applied between P-NU, NV, NW	450	V
V _{CC(surge)}	Supply voltage (surge)	Applied between P-NU, NV, NW	500	V
V _{CES}	Collector-emitter voltage		600	V
±I _C	Each IGBT collector current	T _C = 25°C	15	A
±I _{CP}	Each IGBT collector current (peak)	T _C = 25°C, less than 1ms	30	A
P _C	Collector dissipation	T _C = 25°C, per 1 chip	33.3	W
T _j	Junction temperature	(Note 1)	-20~+125	°C

Note 1 : The maximum junction temperature rating of the power chips integrated within the DIP-IPM is 150°C (@ T_C ≤ 100°C). However, to ensure safe operation of the DIP-IPM, the average junction temperature should be limited to T_{j(ave)} ≤ 125°C (@ T_C ≤ 100°C).

CONTROL (PROTECTION) PART

Symbol	Parameter	Condition	Ratings	Unit
V _D	Control supply voltage	Applied between VP1-VNC, VN1-VNC	20	V
V _{DB}	Control supply voltage	Applied between VUFB-U, VVFB-V, VWFB-W	20	V
V _{IN}	Input voltage	Applied between UP, VP, WP, UN, VN, WN-VNC	-0.5~V _D +0.5	V
V _{FO}	Fault output supply voltage	Applied between FO-VNC	-0.5~V _D +0.5	V
I _{FO}	Fault output current	Sink current at FO terminal	1	mA
V _{SC}	Current sensing input voltage	Applied between CIN-VNC	-0.5~V _D +0.5	V

TOTAL SYSTEM

Symbol	Parameter	Condition	Ratings	Unit
V _{CC(PROT)}	Self protection supply voltage limit (short circuit protection capability)	V _D = 13.5~16.5V, Inverter part T _j = 125°C, non-repetitive, less than 2μs	400	V
T _C	Module case operation temperature	(Note 2)	-20~+100	°C
T _{stg}	Storage temperature		-40~+125	°C
V _{iso}	Isolation voltage	60Hz, Sinusoidal, 1 minute, Between pins and heat-sink plate	1500	V _{rms}

Note 2: T_C measurement point

