

<DIIPM>

600V LARGE DIIPM Ver.4 Series APPLICATION NOTE PS21A79 / PS21A7A

Table of contents

CHAPTER 1 INTRODUCTION	2
1.1 Target Applications	2
1.2 Product Line-up	2
1.3 Functions and Features	2
1.4 The differences of previous series (Large DIIPM Ver.3 PS2186X) and this series	3
CHAPTER2 SPECIFICATIONS AND CHARACTERISTICS	4
2.1 Specifications	4
2.1.1 Maximum Ratings	4
2.1.2 Thermal Resistance	5
2.1.3 Electric Characteristics (Power Part)	5
2.1.4 Electric Characteristics (Control Part)	6
2.1.5 Recommended Operating Conditions	7
2.1.6 Mechanical Characteristics and Ratings	8
2.2 Protective Functions and Operating Sequence	9
2.2.1 Short Circuit Protection	9
2.2.2 Control Supply UV Protection	12
2.2.3 Temperature analog output	13
2.3 Package Outlines	16
2.3.1 Outline Drawing	16
2.3.2 Power Chip Position	17
2.3.3 Laser Marking Position	17
2.3.4 Terminal Description	18
2.4 Mounting Method	20
2.4.1 Electric Spacing	20
2.4.2 Mounting Method and Precautions	20
2.4.3 Soldering Conditions	21
CHAPTER3 SYSTEM APPLICATION HIGHLIGHT	22
3.1 Application Guidance	22
3.1.1 System connection	22
3.1.2 Interface Circuit (Direct Coupling Interface example)	23
3.1.3 Interface Circuit (Opto-coupler Isolated Interface)	24
3.1.4 Circuits of Signal Input terminals and Fo Terminal	25
3.1.5 Snubber Circuit	27
3.1.6 Influence of wiring	28
3.1.7 Precaution for wiring on PCB	29
3.1.8 SOA of DIIPM	30
3.1.9 SCSOA	30
3.1.10 Power Life Cycles	32
3.2 Power Loss and Thermal Dissipation Calculation	33
3.2.1 Power Loss Calculation	33
3.2.2 Temperature Rise Considerations and Calculation Example	35
3.3 Noise Withstand Capability	36
3.3.1 Evaluation Circuit	36
3.3.2 Countermeasures and Precautions	36
3.3.3 Static Electricity Withstand Capability	37
CHAPTER 4 Bootstrap Circuit Operation	38
4.1 Bootstrap Circuit Operation	38
4.2 Bootstrap Supply Circuit Current at Switching State	39
4.3 Note for designing the bootstrap circuit	39
4.4 Initial charging in bootstrap circuit	40
CHAPTER5 PACKAGE HANDLING	41
5.1 Packaging Specification	41
5.2 Handling Precautions	42