

< DIPIPM >

DIPIPM+ Series APPLICATION NOTE

PSSxxMC1Fx, PSSxxNC1Fx

Table of contents

CHAPTER 1 : INTRODUCTION	2
1.1 Feature of DIPIPM+	2
1.2 Functions	3
1.3 Applications.....	3
1.4 Line-up	4
CHAPTER 2 : SPECIFICATIONS and CHARACTERISTICS	5
2.1 Specification of DIPIPM+	5
2.1.1 Maximum ratings	5
2.1.2 Thermal Resistance.....	8
2.1.3 Electric Characteristics and Recommended Conditions.....	9
2.1.4 Mechanical characteristics and specifications.....	13
2.2 Protection functions and operating sequence.....	14
2.2.1 Short circuit protection	14
2.2.2 Control Supply UV Protection	16
2.2.3 Temperature output function V_{OT}	19
2.3 Package outline of DIPIPM+	21
2.3.1 Package outline	21
2.3.2 Marking.....	22
2.3.3 Terminal Description.....	23
2.4 Mounting Method	26
2.4.1 Electric Spacing of DIPIPM+	26
2.4.2 Mounting Method and Precautions	26
2.4.3 Soldering Conditions.....	28
CHAPTER 3 : SYSTEM APPLICATION GUIDANCE.....	29
3.1 Application guidance.....	29
3.1.1 System connection	29
3.1.2 Interface Circuit (Direct Coupling Interface example for using one shunt resistor)	30
3.1.3 Interface circuit (example of opto-coupler isolated interface)	32
3.1.4 External SC protection circuit with using three shunt resistors	33
3.1.5 Circuits of Signal Input Terminals and Fo Terminal.....	33
3.1.6 Snubber circuit.....	35
3.1.7 Recommended wiring method around shunt resistor	36
3.1.8 SOA of DIPIPM+ at switching state	38
3.1.9 SCSOA.....	39
3.1.10 Power Life Cycles	40
3.2 Power loss and thermal dissipation calculation	41
3.2.1 Power loss calculation	41
3.2.2 DIPIPM+ performance according to carreir frequency	43
3.3 Noise and ESD withstand capability	45
3.3.1 Evaluation circuit of noise withstand capability	45
3.3.2 Countermeasures and precautions	46
3.3.3 Static electricity withstand capability	47
CHAPTER 4 : Bootstrap Circuit Operation.....	48
4.1 Bootstrap Circuit Operation.....	48
4.2 Bootstrap supply circuit current at switching state	49
4.3 Note for designing the bootstrap circuit	51
4.4 Initial charging in bootstrap circuit.....	52
CHAPTER 5 : PACKAGE HANDLING	53
5.1 Packaging Specification.....	53
5.2 Handling Precautions	54