50A Three-Phase Bridge Rectifier

1 General Description

1.1 Features

- Glass passivated chip
- Ideal for printed circuit boards
- High surge current capability
- High temperature soldering guaranteed:265℃/10 seconds

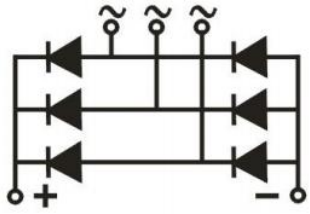
REVERSE VOLTAGE
800-1600V
OUTPUT CURRENT
50Ampere

1.2 Typical Applications

- Inverter for AC or DC motor control
- Current stabilized power supply
- Input rectifiers for variable frequency drives
- Input rectifiers for PWM inverter

1.3 Mechanical Data

- Case: Reliable low cost construction utilizing molded plastic technique
- Terminals: Plated leads solderable per MIL-STD-750, Method 2026
- Mounting Position: Any
- Polarity: Marked on body



2 Maximum Ratings(TA=25℃ Unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS	SGBJ5008	SGBJ5010	SGBJ5012	SGBJ5016	UNIT
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	-	800	1000	1200	1600	V
Non-repetitive Peak Reverse Voltage	V_{RSM}	-	900	1100	1300	1700	V
Output Current	I_D	Three Phase, Full Wave Tc =95℃	50				A
Surge Forward Current	I_{FSM}	Tj=25℃, t = 50Hz(10ms), V_R = 0V	500				A
Circuit Fusing Consideration	I^2t	t = 10ms ,Tj =25℃	1250				A^2s
Isolation Breakdown Voltage	V_{ISO}	AC50Hz/60Hz;R.M.S; 1min	2500				V
Operating Junction Temperature	T_J	-	-40 to +150				℃
Storage Temperature	T_{STG}	-	-40 to +125				℃
Mounting Torque	M_S	(Recommended torque:0.65 N·m)	0.8				N·m
Thermal Impedance, Max	$R_{\theta J-C}$	Junction to Case(Per Total)	0.5				℃/W
		Junction to Case(Per Diode)	3				

3 Electrical Characteristics(TA=25℃ Unless otherwise specified)

PARAMETER	SYMBOL	CONDITION	SGBJ5008	SGBJ5010	SGBJ5012	SGBJ5016	UNIT
Forward Voltage Drop, Max	V_{FM}	Tj = 25℃ I_F = 25A	1.18 Max.				V
Repetitive Peak Reverse Current, Max	I_{RRM}	Tj =25℃ V_R = V_{RRM}	5 Max.				μA
		Tj =150℃ V_R = V_{RRM}	3 Max.				mA
Threshold Voltage, for power loss calculation only	V_{T0}	Tj =125℃	0.75				V
Slope Resistance, for power loss calculation only	r_T	Tj =125℃	7				mΩ

4 Characteristics Curves(TA=25℃ Unless otherwise specified)

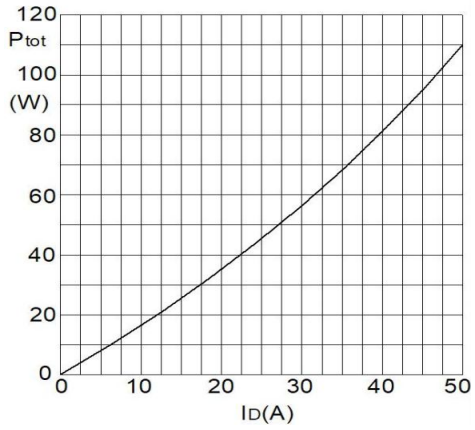


Fig1. Power Dissipation

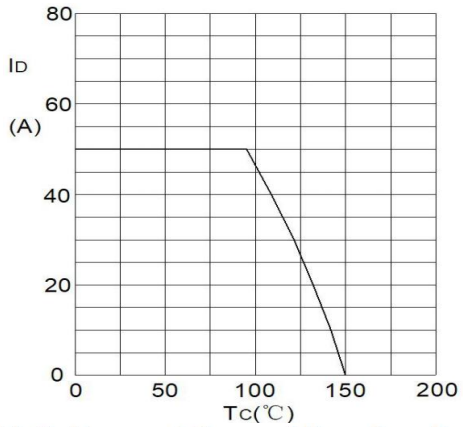


Fig2. Forward Current Derating Curve

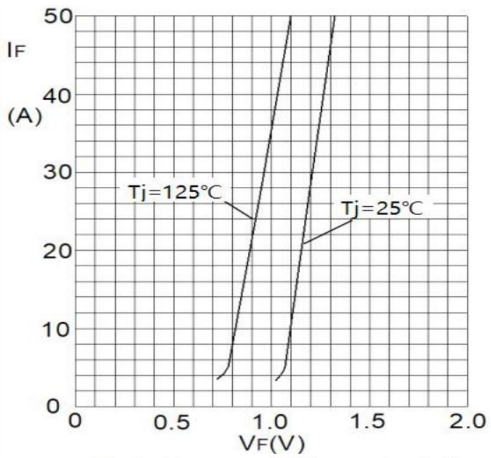


Fig3. Forward Characteristics

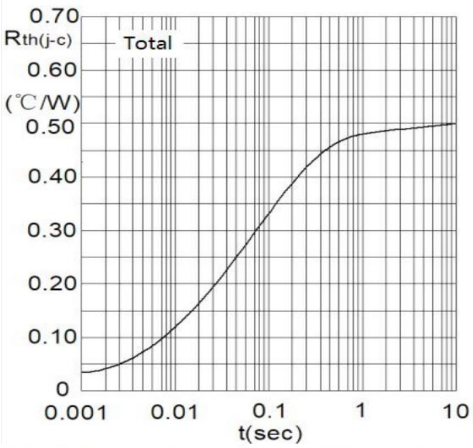


Fig4. Transient Thermal impedance

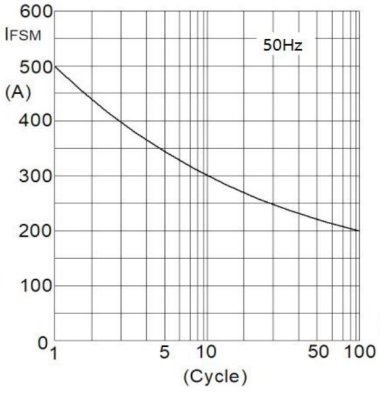
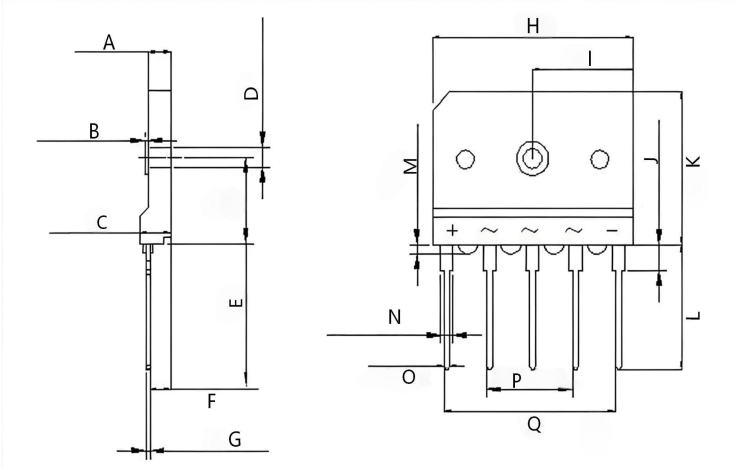


Fig5. Max Non-Repetitive Forward Surge Current

5 Package Outline Dimensions



Symbol	UNIT(mm)	
	Min	Max
A	3.80	4.20
B	0.40	0.60
C	5.20	5.60
D	2.80	3.70
E	13.90	14.50
F	3.50	3.90
G	0.65	0.75
H	34.70	35.30
I	17.30	17.70
J	3.90	4.50
K	24.70	25.30
L	19.50	20.20
M	1.30	1.70
N	2.10	2.30
O	0.90	1.10
P	14.70	15.30
Q	29.70	30.30

6 Ordering Information

PACKAGE	UNIT WEIGHT (g)	BOX (pcs)	CARTON (pcs)
SGBJ	Approximate 12.7	100	1000

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