

## Single-Phase Rectifier Bridge

### FEATURES

- High surge capability
- Qualified for industrial level
- Leads suitable to PCB soldering
- Isolated baseplate
- Easy mounting on heatsink

### TYPICAL APPLICATIONS

- Power supplies
- Input rectifiers for PWM inverter
- Battery DC power supplies
- Field supply for DC motors

MAJOR RATINGS AND CHARACTERISTICS			
PARAMETER	TEST CONDITIONS	VALUES	UNITS
$I_{F(AV)}$		35	A
	$T_{Case}$	65	°C
$I_{F(RMS)}$		55	A
	$T_{Case}$	65	°C
$I_{FSM}$	50 Hz	475	A
	60 Hz	500	A
$I^2t$	50 Hz	1130	A <sup>2</sup> s
	60 Hz	1030	A <sup>2</sup> s
$V_{DRM}/V_{RRM}$		200 to 1200	V
$T_J$		-55 to 150	°C

### ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS				
SERIES	VOLTAGE CODE	$V_{DRM}/V_{RRM}$ , MAX. RE- PETITIVE PEAK AND OFF-STATE VOLTAGE (V)	$V_{RSM}$ , MAX. NON- REPETITIVE PEAK VOLTAGE (V)	$I_{DRM}/I_{RRM}$ , MAX. at $T_J$ = $T_{J(Max.)}$ (mA)
SB35/...	02	200	300	0.5
SB35/...	04	400	500	
SB35/...	06	600	700	
SB35/...	08	800	900	
SB35/...	10	1000	1100	
SB35/...	12	1200	1300	

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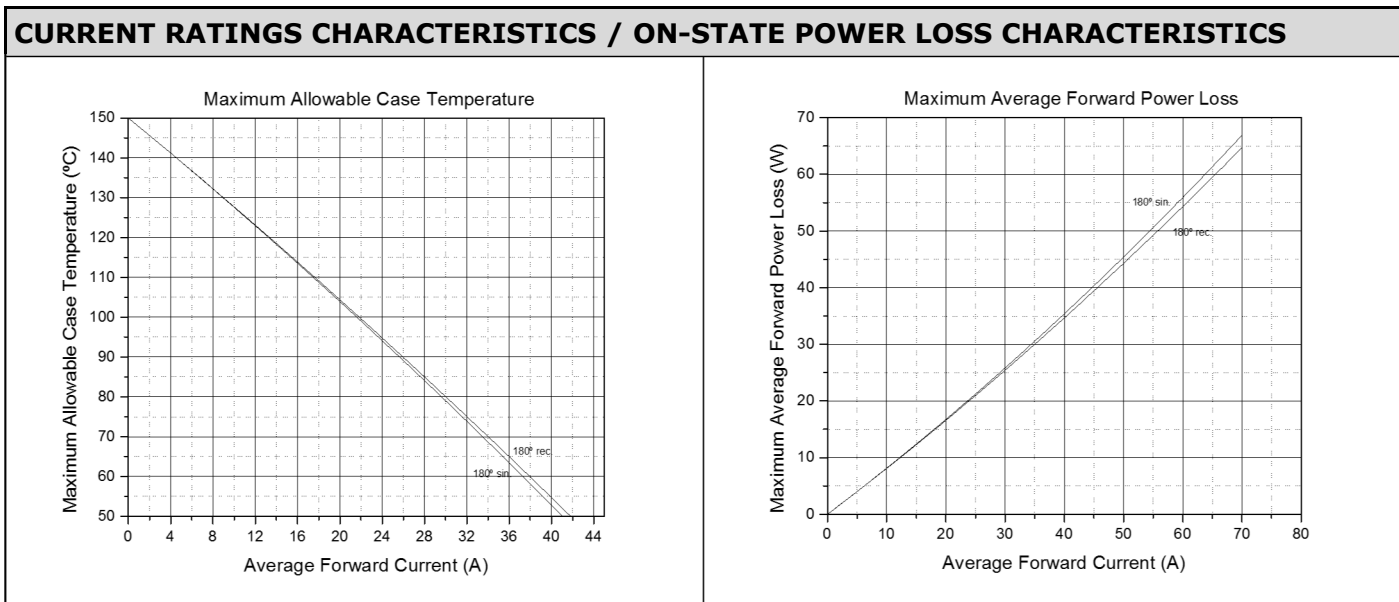
MAXIMUM ALLOWABLE RATINGS						
SYMBOL	DESCRIPTION	TEST CONDITIONS		VALUE	UNITS	
$I_{F(AV)}$	Maximum average on-state current at heatsink temperature	180° conduction, half sine wave		35	A	
				65	°C	
$I_{F(RMS)}$	Maximum RMS on-state current	DC at 25°C heatsink temperature		55	A	
$I_{FSM}$	Maximum peak, one-cycle non-repetitive surge current	t = 10 ms	100% $V_{RRM}$ reapplied	Sinusoidal half wave, initial $T_J = T_J \text{ max.}$	A	
		t = 8.3 ms	100% $V_{RRM}$ reapplied			420
		t = 10 ms	No voltage reapplied			475
		t = 8.3 ms	No voltage reapplied			500
$I^2t$	Maximum $I^2t$	t = 10 ms	100% $V_{RRM}$ reapplied	Sinusoidal half wave, initial $T_J = T_J \text{ max.}$	$A^2s$	
		t = 8.3 ms	100% $V_{RRM}$ reapplied			800
		t = 10 ms	No voltage reapplied			730
		t = 8.3 ms	No voltage reapplied			1130
$I^2t^{1/2}$	Maximum $I^2t^{1/2}$	t = 0.1 to 10 ms, no voltage reapplied		11.30	$kA^2s^{1/2}$	
$V_{F(T0)}$	Low level threshold voltage	(16.7% $\times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)}$ ), $T_J = T_J \text{ max.}$		0.96	V	
$r_F$	Low level on-state slope resistance			5.80	m $\Omega$	
$V_{FM}$	Maximum on-state voltage	$I_{pk} = 55A$ , 50Hz half sine pulse, $T_J = T_J \text{ max.}$		1.20	V	

BLOCKING					
SYMBOL	DESCRIPTION	TEST CONDITIONS		VALUE	UNITS
$V_{INS}$	RMS insulation voltage	50 Hz, circuit to base, all terminals shorted		3000(1s)	V
$I_{RRM}$	Maximum peak reverse and off-state leakage current	$T_J = T_J \text{ max.}$ , rated $V_{DRM}/V_{RRM}$ applied		0.5	mA

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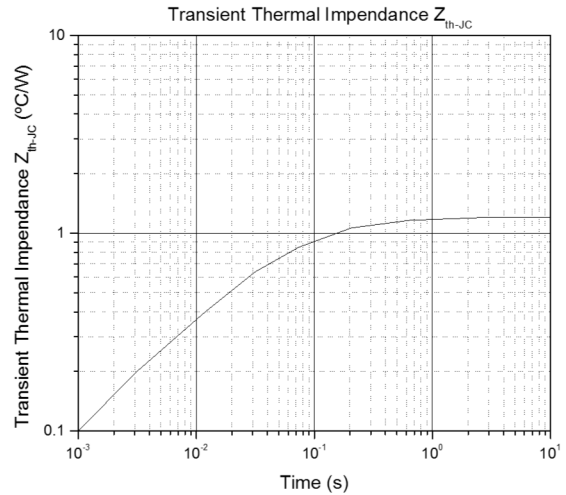
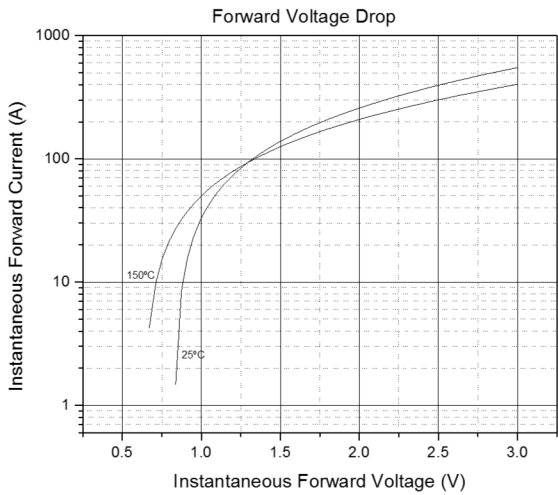
THERMAL AND MECHANICAL SPECIFICATIONS				
SYMBOL	DESCRIPTION	TEST CONDITIONS	VALUE	UNITS
$T_j$	Maximum operating junction temperature	-	-55 to 150	°C
$T_{Stg}$	Maximum storage temperature	-	-55 to 150	
$R_{thJ-hs}$	Maximum thermal resistance, junction to heatsink	DC	1.20	°C/W
$R_{thC-hs}$	Maximum thermal resistance, case to heat-sink	Mtg. Surface smooth, flat, greased	0.100	
-	Mounting force, $\pm 10\%$	To heatsink	2.0	N.m
-	Approximate weight	-	20	g

CURRENT FORM FACTOR								
FORM FACTOR	CONDUCTION ANGLE	CONDUCTION ANGLE						
		15°	30°	45°	60°	90°	120°	180°
Sine wave		31.956	15.832	10.452	7.721	4.933	3.527	2.468
Rectangular wave		24.000	12.000	8.000	6.000	4.000	3.000	2.000

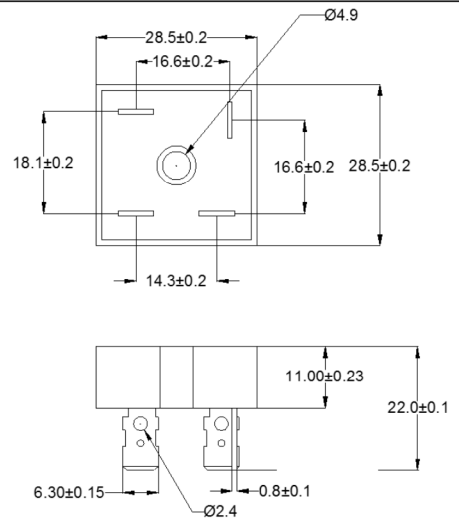
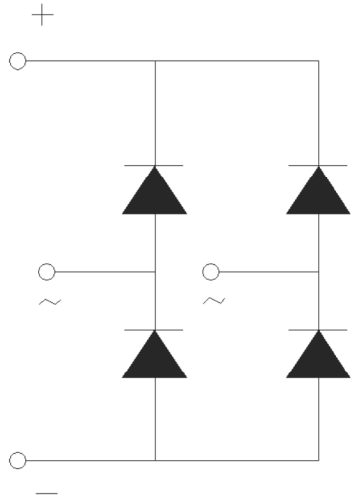


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#### FORWARD VOLTAGE DROP / THERMAL IMPEDANCE CHARACTERISTICS



#### CIRCUIT CONFIGURATION / OUTLINE CHARACTERISTICS



### Single-Phase Rectifier Bridge

#### ORDERING INFORMATION

**Device code**

TB	35	/	12	-	-	-
①	②	③	④	⑤	⑥	⑦

- |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | <ul style="list-style-type: none"> <li>- N = Phase Control Thyristors</li> <li>- F = Fast Thyristors (inverter grade)</li> <li>- D = Normal Recovery Diodes</li> <li>- DF = Fast Recovery Diodes</li> <li>- DD = Module (diode-diode)</li> <li>- DT = Module (diode-thyristor)</li> <li>- TD = Module (thyristor-diode)</li> <li>- TT = Module (thyristor-thyristor)</li> <li>- SB = Single-Phase Rectifier Bridge</li> <li>- TB = Three-Phase Rectifier Bridge</li> <li>- P = Press-fit diode</li> </ul> |
| 2 | - Average Current Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 3 | - Essential Part Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 4 | - Voltage Code x 100 = $V_{RRM}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5 | <ul style="list-style-type: none"> <li>- Turn-off time (fast thyristors only)</li> <li>- Reverse Recovery Time (fast diodes only)</li> </ul>                                                                                                                                                                                                                                                                                                                                                              |
| 6 | <ul style="list-style-type: none"> <li>- M = Metric Thread</li> <li>- I = Inch Thread</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                          |
| 7 | <ul style="list-style-type: none"> <li>- None = Anode to stud (stud diodes only)</li> <li>- R = Cathode to stud (stud diodes only)</li> </ul>                                                                                                                                                                                                                                                                                                                                                             |

#### Disclaimer

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