KomKraft

TB

TB35 Series

Three-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^2s
	60 Hz	1030	A^2s
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. REPETITIVE PEAK AND OFF-STATE VOLTAGE**	**V_{RSM}, MAX. NON-REPETITIVE PEAK VOLTAGE (V)**	**I_{DRM}/I_{RRM}, MAX. at $T_J = T_{J(Max.)}$ (mA)**
TB35/...	02	200	300	0.5
TB35/...	04	400	500	
TB35/...	06	600	700	
TB35/...	08	800	900	
TB35/...	10	1000	1100	
TB35/...	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	180º conduction, half sine wave			35	A
					65	ºC
$I_{F(RMS)}$	Maximum RMS on-state current	DC at 25ºC 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 max.	400	A
		t = 8.3 ms			420	
		t = 10 ms	No voltage reapplied		475	
		t = 8.3 ms			500	
I^2t	Maximum I^2t	t = 10 ms	100% V_{RRM} reapplied		800	A^2s
		t = 8.3 ms			730	
		t = 10 ms	No voltage reapplied		1130	
		t = 8.3 ms			1030	
$I^2t^{1/2}$	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% x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), T_J = T_J max.			0.86	V
r_F	Low level on-state slope resistance				6.30	mΩ
V_{FM}	Maximum on-state voltage	I_{pk} = 40A, 50Hz half sine pulse, T_J = T_J 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-	T_J = T_J max., rated V_{DRM}/V_{RRM} applied	0.5	mA

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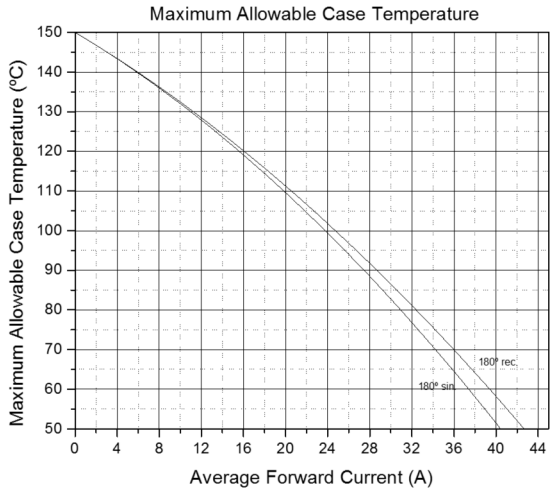
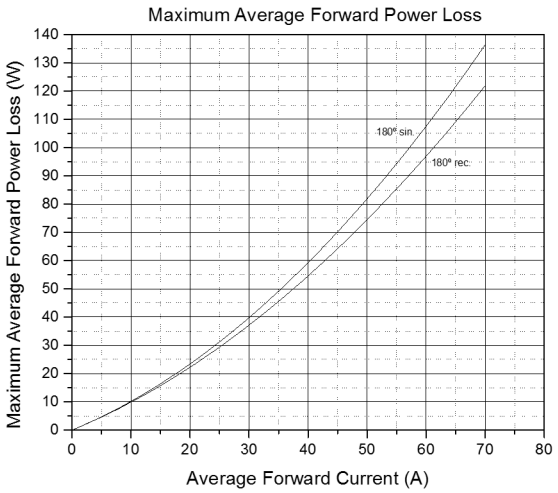
THERMAL AND MECHANICAL SPECIFICATIONS				
SYMBOL	**DESCRIPTION**	**TEST CONDITIONS**	**VALUE**	**UNITS**
T_J	Maximum operating junction temperature	-	-55 to 150	ºC
T_{Stg}	Maximum storage temperature	-	-55 to 150	
$R_{thJ\text{-}hs}$	Maximum termal resistance, junction to heatsink	DC	1.16	ºC/W
$R_{thC\text{-}hs}$	Maximum termal resistance, case to heat-sink	Mtg. Surface smooth, flat, greased	0.100	
-	Mounting force, ± 10%	To heatsink	2.0	N.m
-	Approximate weight	-	20	g

CURRENT FORM FACTOR							
FORM FACTOR / **CONDUCTION ANGLE**	**15º**	**30º**	**45º**	**60º**	**90º**	**120º**	**180º**
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

CURRENT RATINGS CHARACTERISTICS / ON-STATE POWER LOSS CHARACTERISTICS





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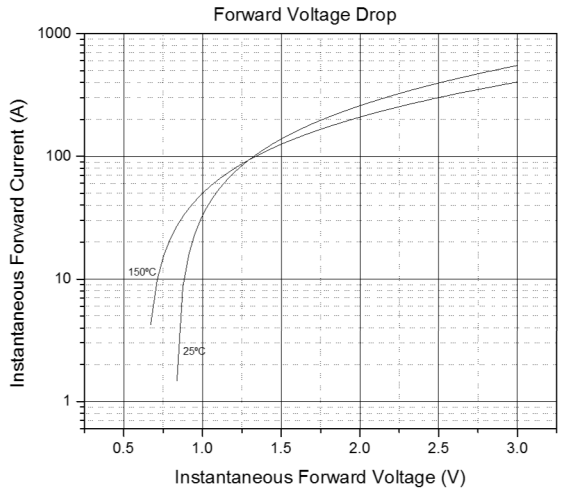
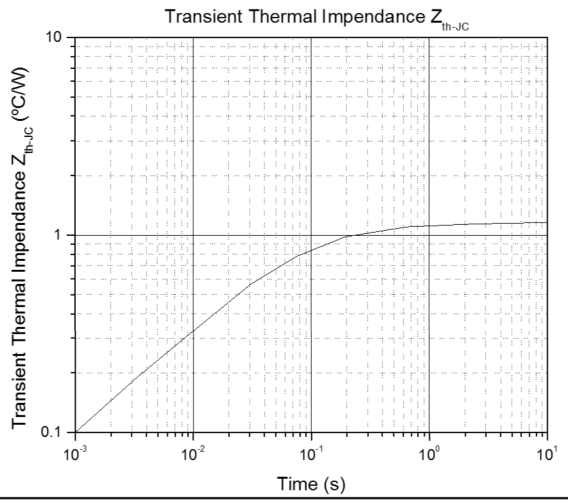
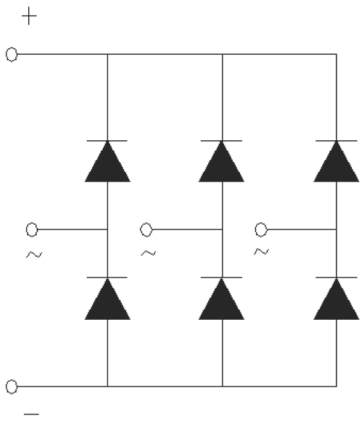
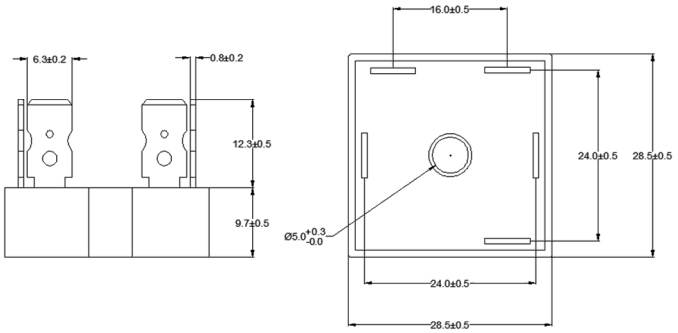
FORWARD VOLTAGE DROP / THERMAL IMPEDANCE CHARACTERISTICS





CIRCUIT CONFIGURATION / OUTLINE CHARACTERISTICS





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ORDERING INFORMATION

Device code

TB	35	/	12	-	-	-
1	2	3	4	5	6	7

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