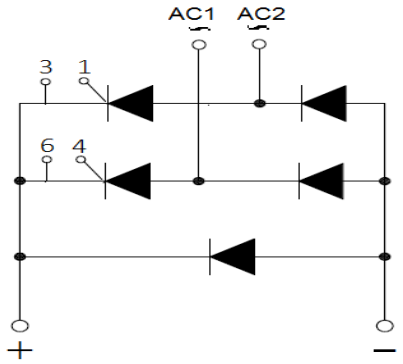
Technical Information

Single Phase Half Controlled Bridge with Free Wheeling Diode

MHQ45



Key Parameters

V_{DRM} / V_{RRM}	= 1600V
$I_{D(AV)}$	= 45A
I_{TSM}	= 470A
$V_{T(TO)}$	= 0.95V
r_T	= 15mΩ

Features

- Full blocking capability over wide temperature range
- Heat transfer through aluminium oxide ceramic isolated metal baseplate
- Hard soldered joints for high reliability

Applications

- Power Supplies
- DC motor control
- Controlled Rectifiers
- Temperature control

Ordering Information

MHQ	45	- X X
Single Phase Half Controlled Bridge with Free Wheeling Diode	Current Code	Voltage Code Code X 100 = V_{DRM}/V_{RRM}
Order Code MHQ45–16 : 1600V V_{DRM},V_{RRM}, Single Phase Half Controlled Bridge with Free Wheeling Diode Bridge		

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MHQ45

MS power

Symbol	Characteristic	Conditions	Tj [°C]	Value	Unit
BLOCKING					
V_{RRM}	Repetitive peak reverse voltage		125	800 - 1600	V
V_{RSM}	Non-repetitive peak reverse voltage		125	900 - 1700	V
V_{DRM}	Repetitive peak off-state voltage		125	800 - 1600	V
I_{RRM}	Repetitive peak reverse current	V= V_{RRM}	125	5	mA
I_{DRM}	Repetitive peak off-state current	V= V_{DRM}	125	5	mA
CONDUCTING					
$I_{D\ (AV)}$	DC output current	T_c=85°C		45	A
I_{TSM}	Surge on-state current	Sine wave, 10 ms Without reverse voltage	25	470	A
			125	400	A
I^2t	I^2t	Sine wave, 10 ms Without reverse voltage	25	1104	A^2s
			125	800	A^2s
V_T	On-state voltage	On-state current = 70A	25	2.0	V
$V_{T(TO)}$	Threshold voltage		125	0.95	V
r_T	On-state slope resistance		125	15	mΩ
SWITCHING					
di/dt	Critical rate of rise of on-state current		125	50	A/µs
dv/dt	Critical rate of rise of off-state voltage	V_{DR} = 67%V_{DRM}	125	500	V/µs
GATE					
I_{gt}	Gate trigger current	V_D=6V	25	100	mA
V_{gt}	Gate trigger voltage	V_D=6V	25	3.0	V
I_H	Holding current	V_D=6V, gate open circuit	25	200	mA
I_L	Latching current	V_D=6V	25	400	mA
MOUNTING					
$R_{th(j-c)}$	Thermal impedance, sin 180°	Junction to case, per arm per module		1.04 0.26	°C/W
$R_{th(j-c)}$	Thermal impedance, rec120°	Junction to case, per arm per module		1.20 0.30	°C/W
$R_{th(c-h)}$	Thermal impedance	Case to heatsink, per bridge		0.05	°C/W
T_j	Max. junction temperature			125	°C
T_{stg}	Storage temperature			-40 125	°C
V_{ISOL}	Insulation test voltage,RMS	F=50Hz, 1min		2.5	KV
M1	Mounting torque			5 ± 15%	Nm
M2	Terminal connection torque			3 ± 15%	Nm
W	Weight (Approx.)			150	gm

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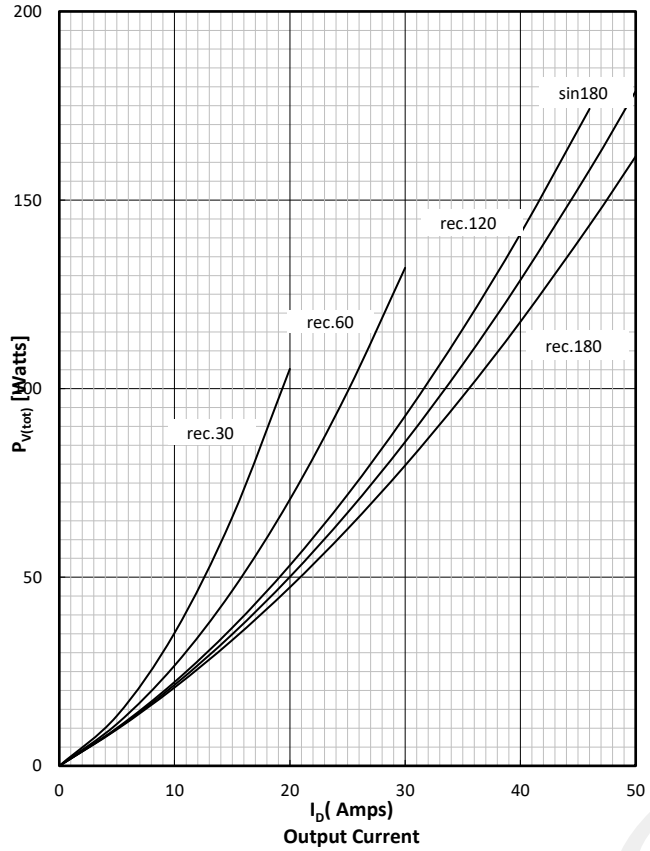
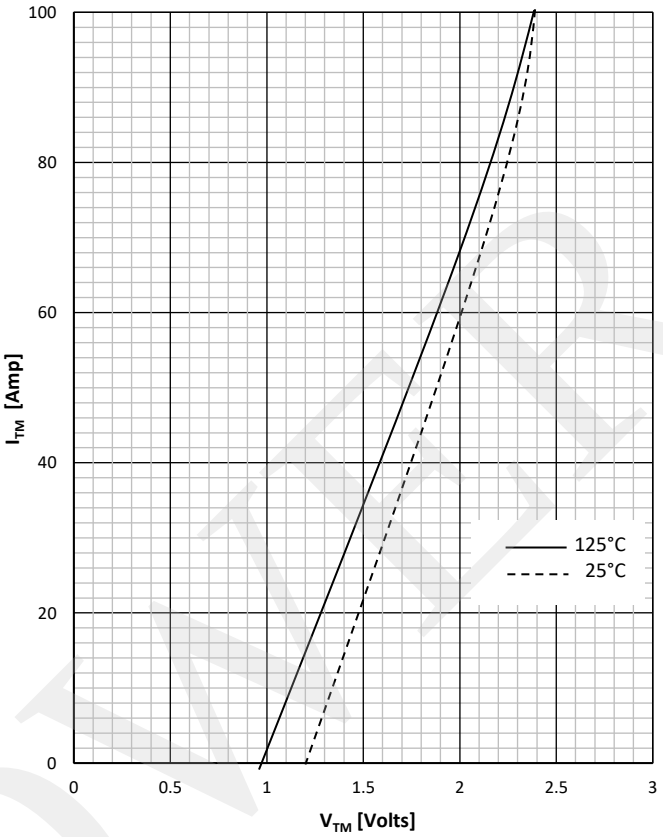
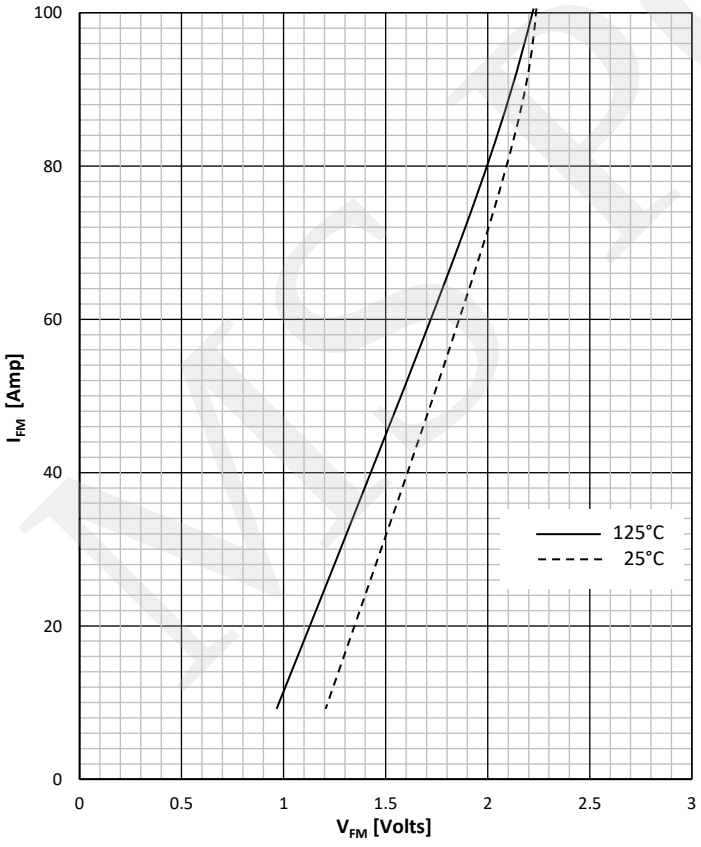
POWER DISSIPATION Vs OUTPUT CURRENT



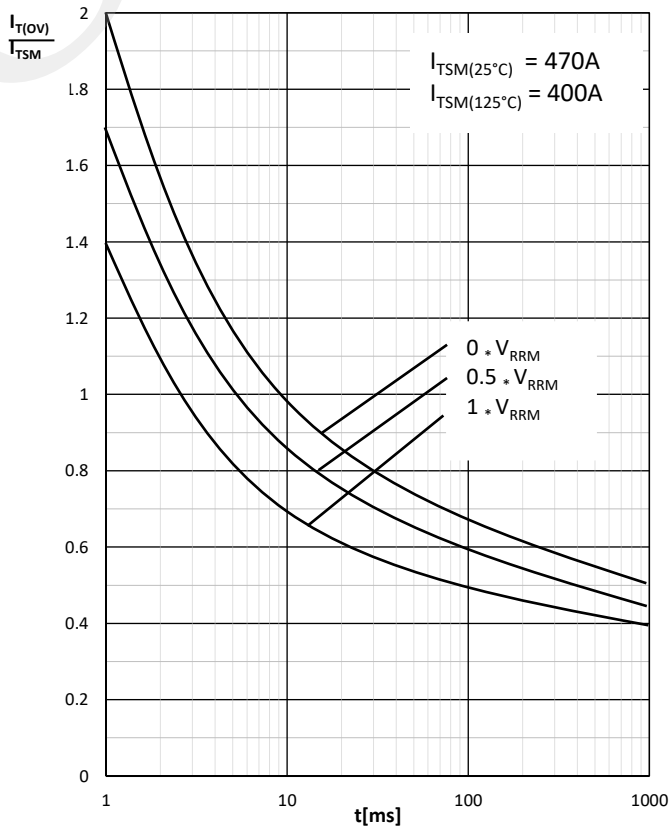
ON -STATE CHARACTERISTIC OF A THYRISTOR ARM



ON -STATE CHARACTERISTIC OF A DIODE ARM



SURGE CHARACTERISTICS



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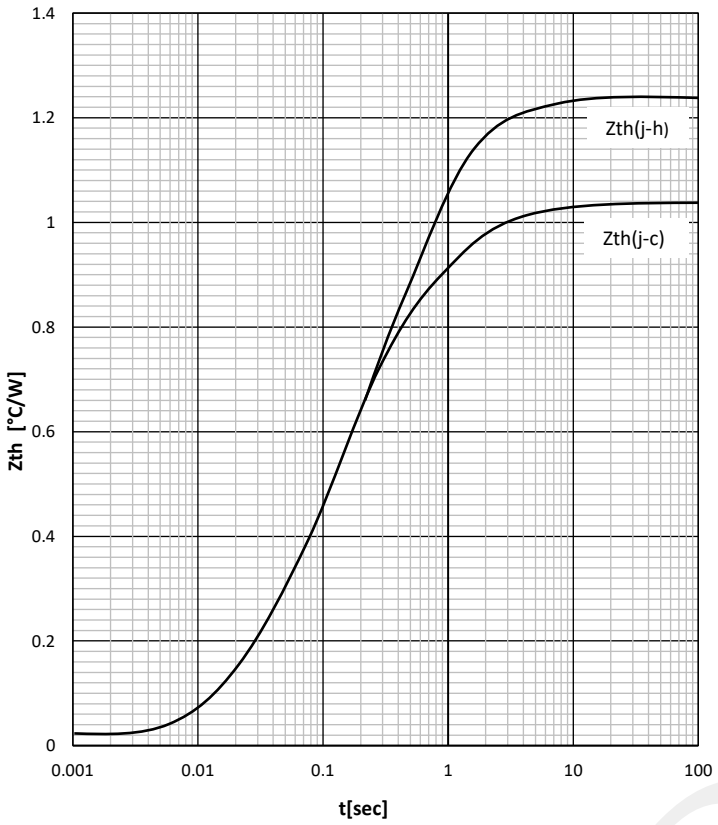
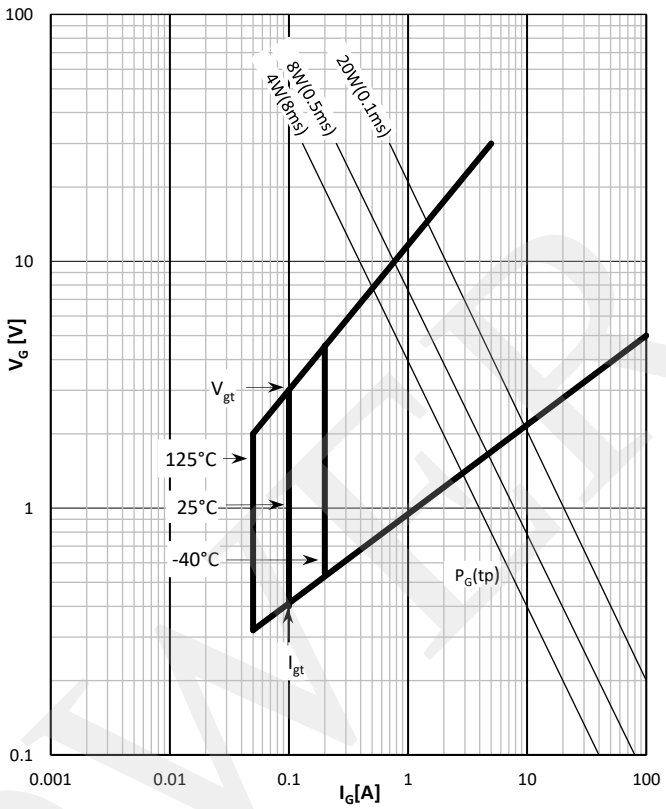
TRANSIENT THERMAL IMPEDANCE, PER CHIP



GATE TRIGGER CHARACTERISTICS



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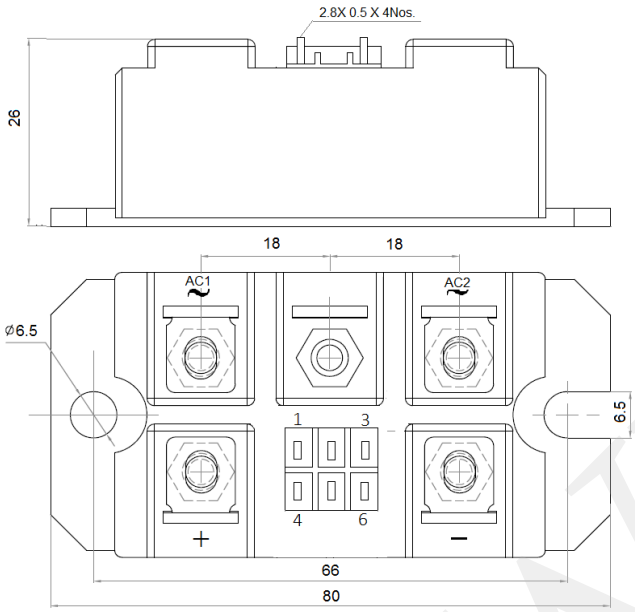
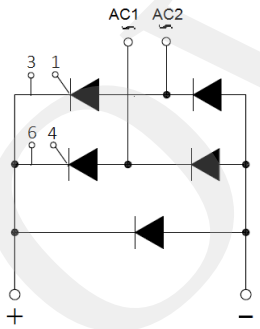
Outline





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