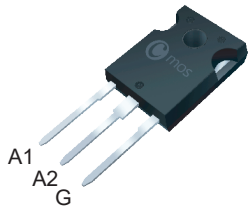
General Description

Available in high power packages, the CMH41 series is suitable for general purpose AC switching.

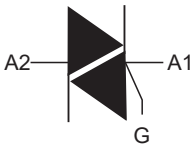
Applications

- On/off function in static relays, heating regulation, induction motor starting circuits

TO-247 Pin Configuration



TO-247



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Rating	Units
$I_{T(RMS)}$	RMS on-state current (360°conduction angle)	(Tc=80℃)	41	A
I_{TSM}	Non repetitive surge peak on-state current (Tj initial = 25℃)	tp=20ms	400	A
		tp=16.7ms	420	
I^2t	I^2t value	tp=10ms	1000	A2s
dI/dt	Critical rate of rise of on-state current I_G = 2xI_{GT} , t_r ≤ 100 ns	Repetitive F= 120Hz (Tc=125℃)	50	A/µs
Tstg	Storage and operating junction temperature range		- 40 to + 150	℃
Tj			- 40 to + 125	℃
Tl	Maximum lead temperature for soldering during 10 s at 4.5 mm from case		260	℃

Symbol	Parameter	CMH41...				Unit
		400	600	700	800	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage Tj = 110℃	400	600	700	800	V

Thermal resistances

Symbol	Parameter	Value	Unit
Rth (j-a)	Junction to ambient	50	℃/W
Rth (j-c) AC	Junction to case for 360° conduction angle (F= 50 Hz)	0.9	℃/W

GATE CHARACTERISTICS (maximum values)

Electrical characteristics

Symbol	Test Conditions	Quadrant		Value	Unit
I_{GT}	V_D=12V (DC) R_L=100Ω, Tj=25℃	I	MAX	50	mA
		II	MAX	50	
		III	MAX	50	
		IV	MAX	120	
V_{GT}	V_D=12V (DC) R_L=100Ω , Tj=25°C	I-II-III-IV	MAX	1.5	V
V_{GD}	V_D=V_{DRM} R_L=3.3kΩ, Tj=125°C	I-II-III-IV	MIN	0.2	V
tgt	V_D=V_{DRM} I_G =500mA dIG/dt = 3A/μs , Tj=25°C	I-II-III-IV	TYP	2.5	μs
I_L	I_G=1.2 I_{GT}, Tj=25°C	I	MAX	70	mA
		II	MAX	70	
		III	MAX	70	
		IV	MAX	160	
I_H *	I_T= 500mA gate open,Tj=25°C		MAX	80	mA
V_{TM} *	I_{TM}=82A , tp= 380μs, Tj=25°C		MAX	1.55	V
I_{DRM}	V_{DRM} Rated，Tj=25°C		MAX	0.01	mA
I_{RRM}	V_{RRM} Rated，Tj=125°C		MAX	2	
dV/dt *	Linear slope up to VD=67%VDRM gate open ，Tj=125°C		MIN	500	V/μs
(dV/dt)c*	(dI/dt)c =20A/ms ，Tj=125°C		MIN	10	V/μs

* For either polarity of electrode A2 voltage with reference to electrode A1.

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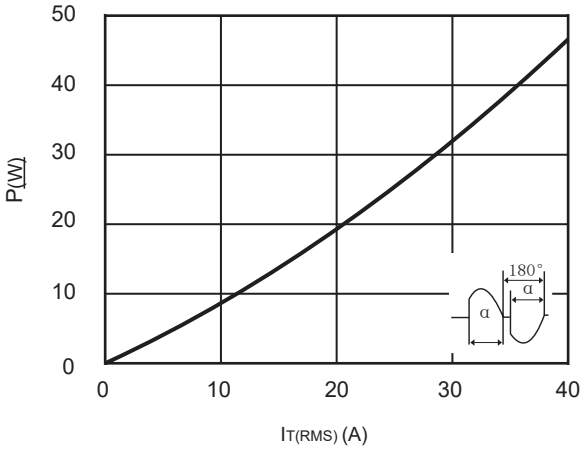
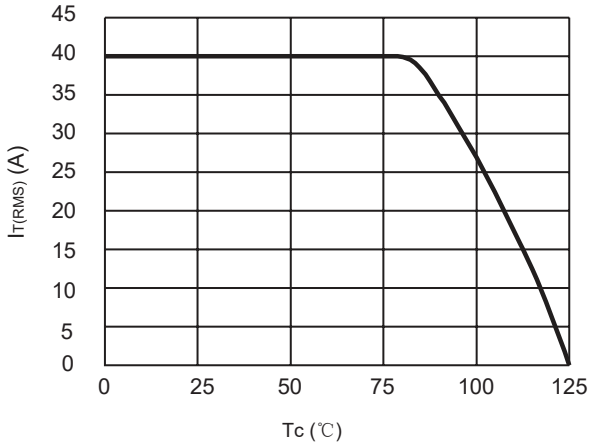
Cmos assumes no liability for customers' product design or applications.
Cmos reserver the right to improve product design ,functions and reliability wihtout notice.

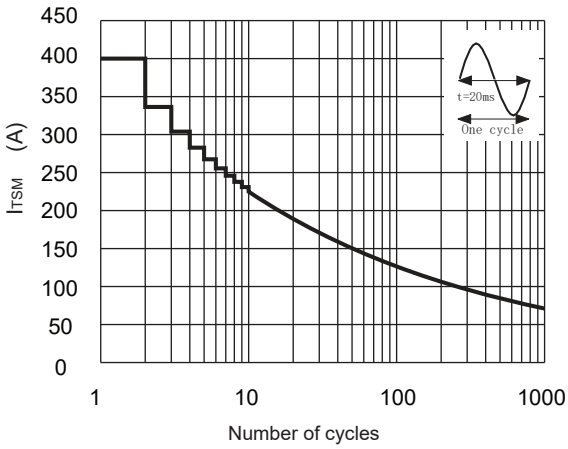
Typical Characteristics



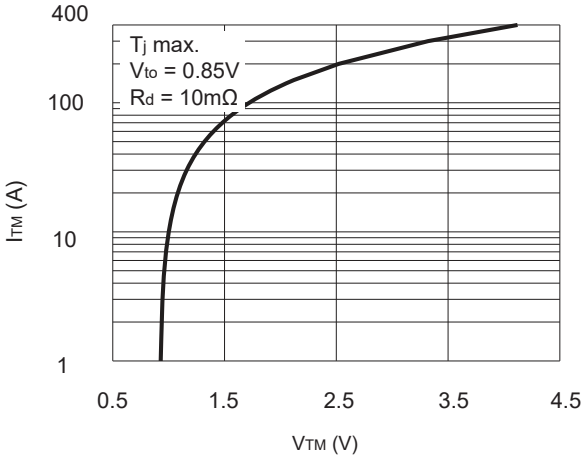
Maximum power dissipation versus RMS on-state current



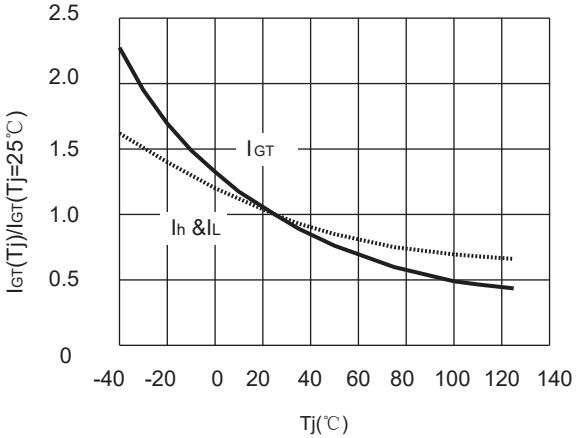
RMS on-state current versus case temperature



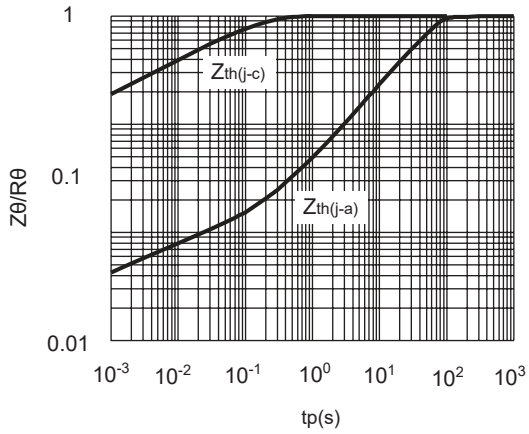
Surge peak on-state current versus number of cycles



On-state characteristics (maximum values).



Relative variation of gate trigger current and holding current versus junction temperature.



Relative variation of thermal impedance versus pulse duration.