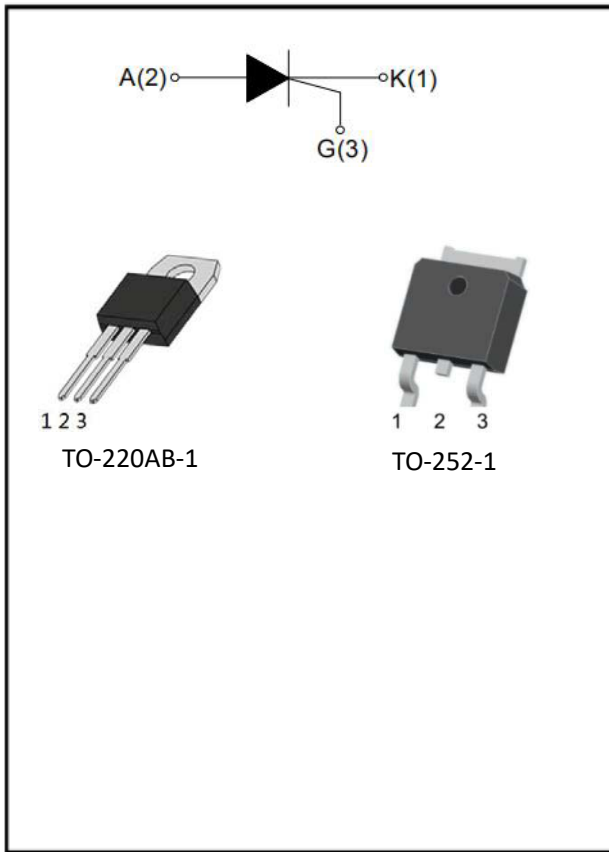


## 12A SCRs



### Features

- On-state rms current,  $I_{T(RMS)}$  12 A
- Repetitive peak off-state voltage,  $V_{DRM}/V_{RRM}$  800 V
- Triggering gate current,  $I_{GT}$  15mA

### Applications

- Ground Fault Circuit Interrupters (GFCI)
- General purpose switching and phase control
- Ignition circuits, CDI
- Motor control - e.g. small kitchen appliances

### Mechanical Data

- Case Material: "Green" Molding Compound
- Package:

DEVICE	PACKAGE
YCMB1215-08A	TO-220AB-1
YCMB1215-08D	TO-252-1

### Main Characteristics

SYMBOL	LIMITS	UNIT
$I_{T(RMS)}$	12	A
$V_{DRM}/V_{RRM}$	800	V
$I_{GT}$	15	mA

### ■ Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Storage junction temperature range	$T_{stg}$	-40~150	°C
Operating junction temperature range	$T_j$	-40~125	°C
Repetitive surge peak Off-state voltage ( $T_j=25^\circ\text{C}$ )	$V_{DRM}$	800	V
Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )	$V_{RRM}$	800	V
RMS on-state current ( $T_C=80^\circ\text{C}$ )	$I_{T(RMS)}$	12	A
Non-repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$ )	$I_{TSM}$	120	A
$I^2t$ value for fusing ( $t_p=10\text{ms}$ )	$I^2t$	72	$\text{A}^2\text{s}$
Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}$ )	$di/dt$	50	$\text{A}/\mu\text{s}$
Peak gate current	$I_{GM}$	0.2	A
Average gate power dissipation	$P_{G(AV)}$	0.5	W
Peak gate power	$P_{GM}$	5	W



## YCMB1215 Series

### ■Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	MIN	TYP	MAX
Gate trigger current	I <sub>GT</sub>	mA	V <sub>D</sub> =12V, R <sub>L</sub> =33Ω		4	15
Gate trigger voltage	V <sub>GT</sub>	V	V <sub>D</sub> =12V, R <sub>L</sub> =33Ω		0.75	1.5
Non-triggering gate voltage	V <sub>GD</sub>	V	V <sub>D</sub> =V <sub>DRM</sub> T <sub>j</sub> =110°C	0.2		
Holding current	I <sub>H</sub>	mA	I <sub>T</sub> =50mA			30
Latching current	I <sub>L</sub>	mA	I <sub>G</sub> =1.2 I <sub>GT</sub>			40
Rate of rise of off-state voltage	dV/dt	V/μs	V <sub>D</sub> =0.66×V <sub>DRM</sub> T <sub>j</sub> =125°C Gate open	200		

### ■Thermal Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

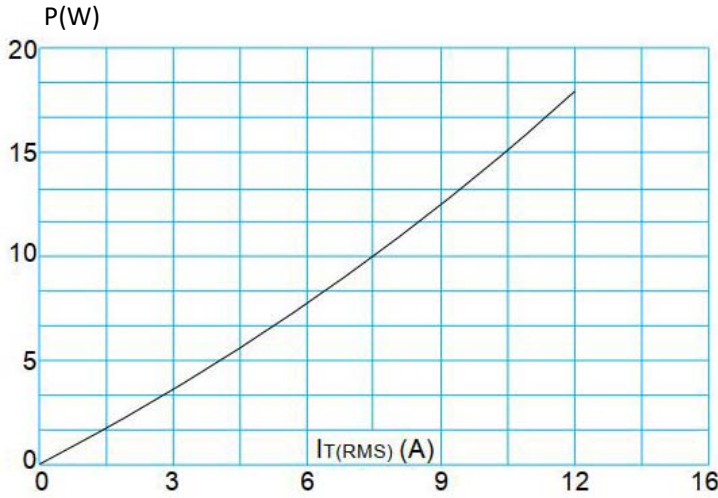
PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	MAX
Peak on-state voltage	V <sub>TM</sub>	V	I <sub>TM</sub> =23A t <sub>p</sub> =380μS	1.75
Peak off-state current	I <sub>DRM</sub>	μA	V <sub>DRM</sub> = V <sub>R<sub>RRM</sub></sub> , T <sub>j</sub> =25°C	5
Peak reverse current	I <sub>R<sub>RRM</sub></sub>	mA	V <sub>DRM</sub> = V <sub>R<sub>RRM</sub></sub> , T <sub>j</sub> =110°C	0.5

### ■Thermal Resistance (T<sub>a</sub>=25°C Unless otherwise specified)

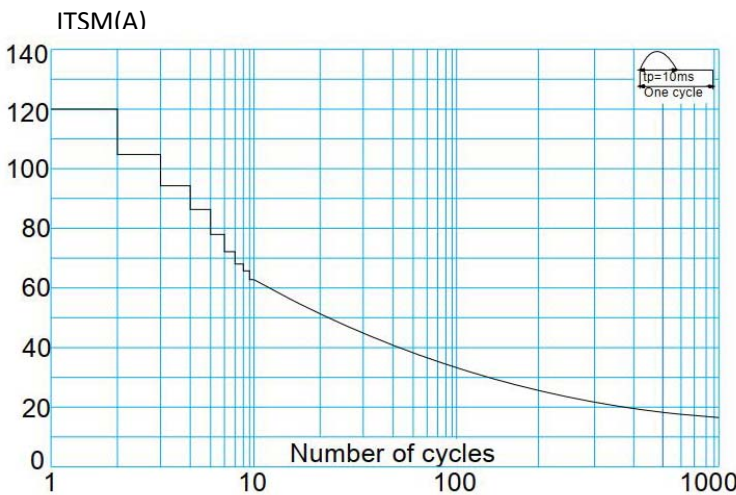
PARAMETER	SYMBOL	UNIT	Pacakge	Value	
Thermal Resistance (Typical)	Junction to case	R <sub>θJ-C</sub>	°C/W	TO-220AB-1	1.3
			°C/W	TO-252-1	1.4

## ■ Characteristics (Typical)

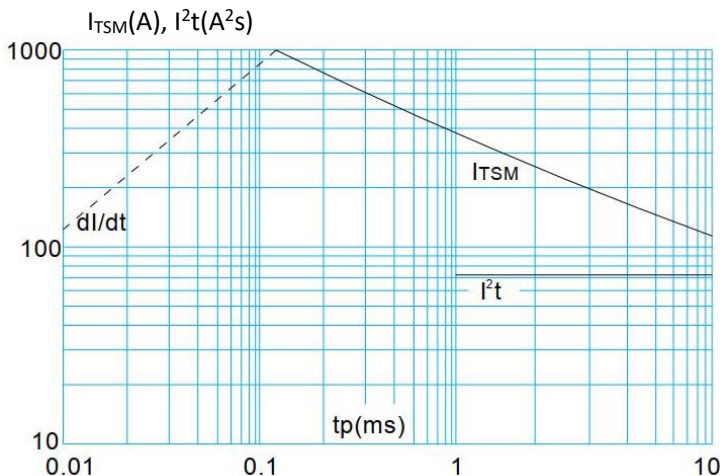
**FIG.1:** Maximum power dissipation versus RMS on-state current



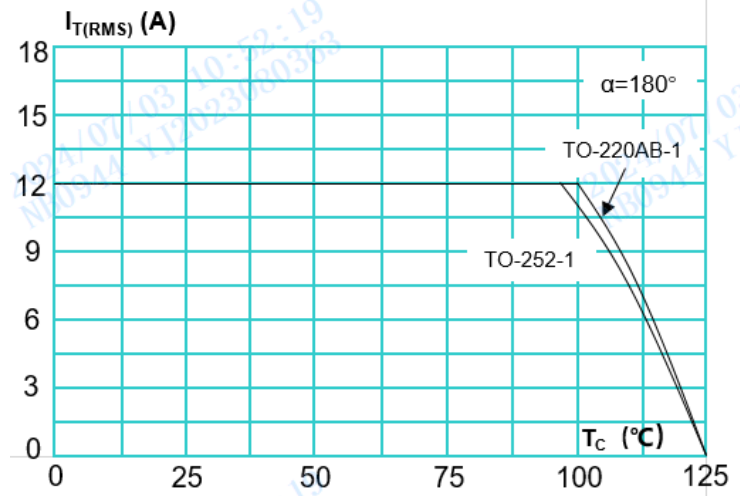
**FIG.3:** Surge peak on-state current versus number of cycles



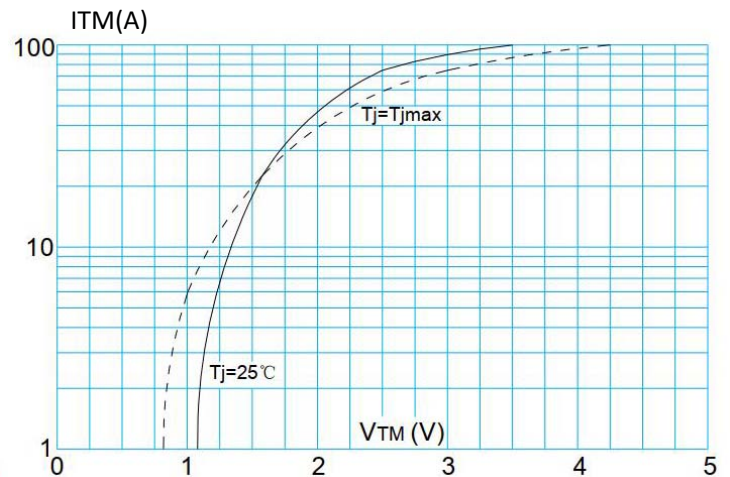
**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$ , and corresponding value of  $I^2t$  ( I - II - III:  $di/dt < 50\text{A}/\mu\text{s}$ ; IV:  $di/dt < 10\text{A}/\mu\text{s}$ )



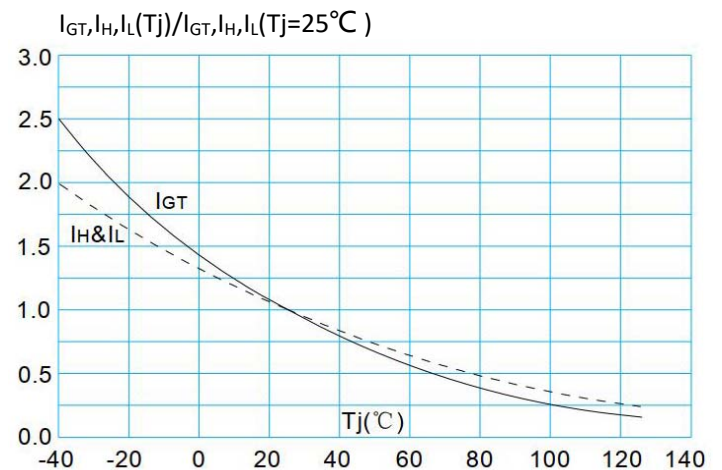
**FIG.2:** RMS on-state current versus case temperature



**FIG.4:** On-state characteristics (maximum values)



**FIG.6:** Relative variations of gate trigger current, holding current and latching current versus junction temperature

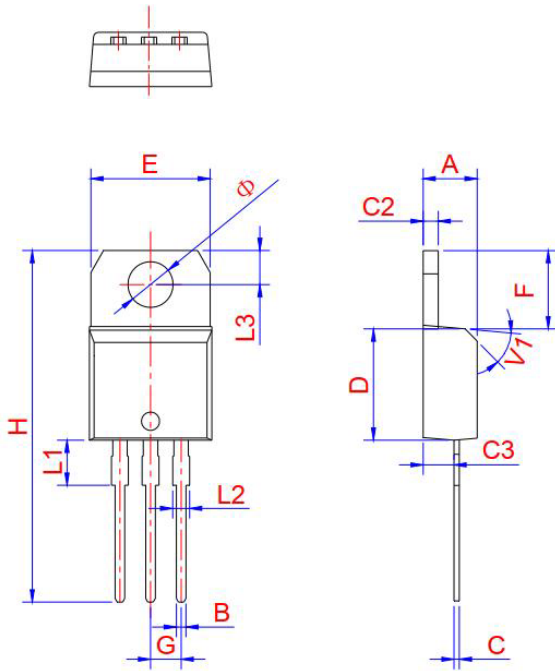




# YCMB1215 Series

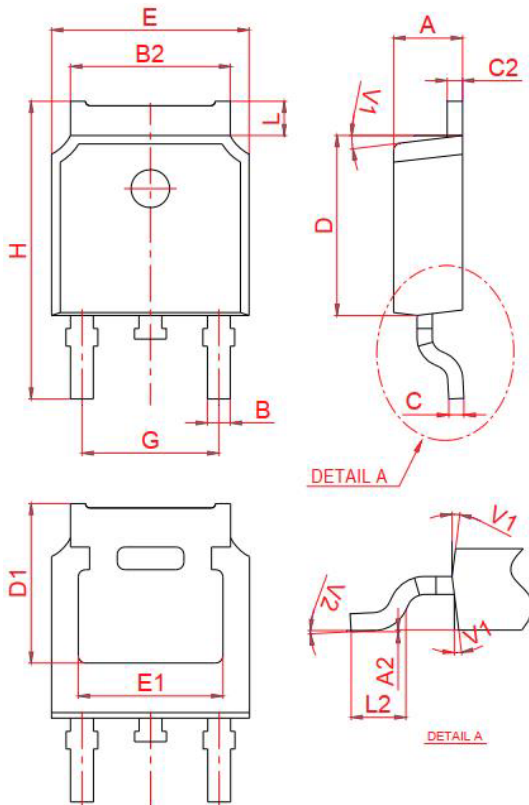
## ■ Outline Dimensions

### ➤ TO-220AB-1 Package Outline Dimensions



Symbol	Min.(mm)	Typ.(mm)	Max.(mm)
A	4.40	4.47	4.60
B	0.61		0.88
C	0.46	0.50	0.70
C2	1.21	1.27	1.32
C3	2.40		2.72
D	8.60		9.70
E	9.80		10.40
F	6.56		6.95
G		2.54	
H	28.00		29.80
L1		3.75	
L2	1.14		1.70
L3	2.65		2.95
V1		45°	
$\Phi$	3.70	3.75	3.80

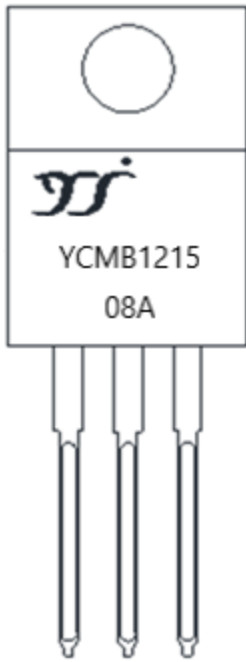
### ➤ TO-252-1 Package Outline Dimensions



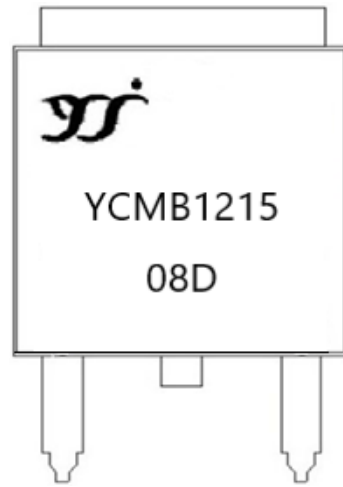
Symbol	Min.(mm)	Typ.(mm)	Max.(mm)
A	2.20		2.40
A2	0		0.10
B	0.66		0.86
B2	5.10		5.46
C	0.46		0.58
C2	0.44		0.58
D	5.90		6.30
D1		5.30	
E	6.40		6.80
E1	4.63		
G	4.372		4.772
H	9.80		10.40
L	1.09		1.21
L2	1.35		1.65
V1		7°	
V2	0°		6°



## ■ Marking Information



YCMB1215-08A  
(TO-220AB-1 Package)



YCMB1215-08D  
(TO-252-1 Package)



## YCMB1215 Series

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