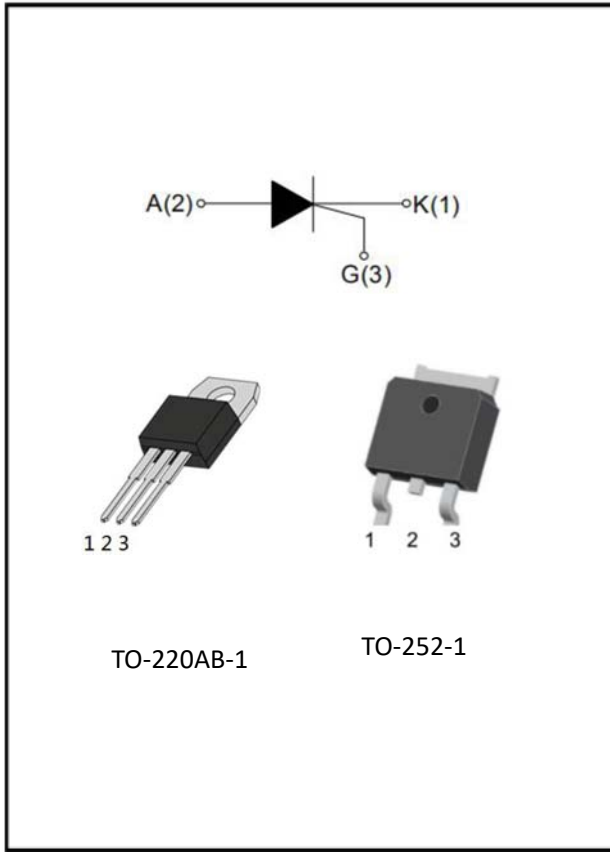


12A SCRs



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 | A^2s |
| 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_a=25°C Unless otherwise specified)

| PARAMETER | SYMBOL | UNIT | TEST CONDITIONS | MIN | TYP | MAX |
|-----------------------------------|-----------------|------|---|-----|------|-----|
| Gate trigger current | I _{GT} | mA | V _D =12V, R _L =33Ω | | 4 | 15 |
| Gate trigger voltage | V _{GT} | V | V _D =12V, R _L =33Ω | | 0.75 | 1.5 |
| Non-triggering gate voltage | V _{GD} | V | V _D =V _{DRM} T _j =110°C | 0.2 | | |
| Holding current | I _H | mA | I _T =50mA | | | 30 |
| Latching current | I _L | mA | I _G =1.2 I _{GT} | | | 40 |
| Rate of rise of off-state voltage | dV/dt | V/μs | V _D =0.66×V _{DRM} T _j =125°C Gate open | 200 | | |

■Thermal Characteristics (T_a=25°C Unless otherwise specified)

| PARAMETER | SYMBOL | UNIT | TEST CONDITIONS | MAX |
|------------------------|------------------------------|------|---|------|
| Peak on-state voltage | V _{TM} | V | I _{TM} =23A t _p =380μs | 1.75 |
| Peak off-state current | I _{DRM} | μA | V _{DRM} = V _{R_{RRM}} , T _j =25°C | 5 |
| Peak reverse current | I _{R_{RRM}} | mA | V _{DRM} = V _{R_{RRM}} , T _j =110°C | 0.5 |

■Thermal Resistance (T_a=25°C Unless otherwise specified)

| PARAMETER | SYMBOL | UNIT | Package | Value | |
|---------------------------------|------------------|-------------------|---------|------------|-----|
| Thermal Resistance (Typical) | Junction to case | R _{θJ-c} | °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

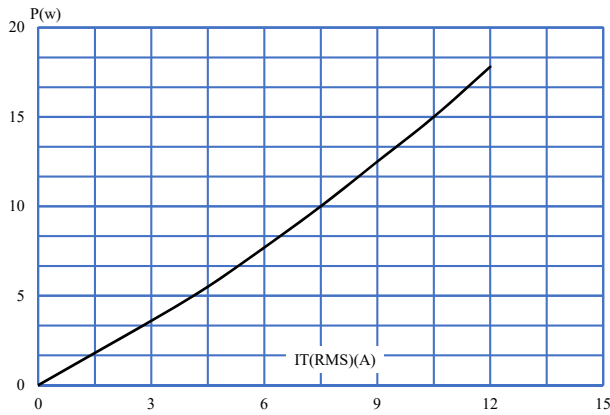


FIG.2: RMS on-state current versus case temperature

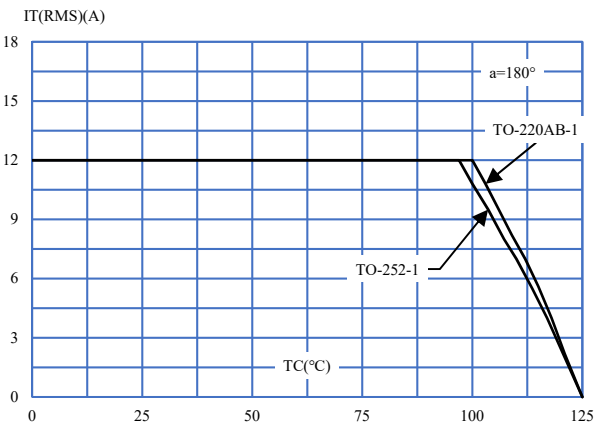


FIG.3: Surge peak on-state current versus number of cycles

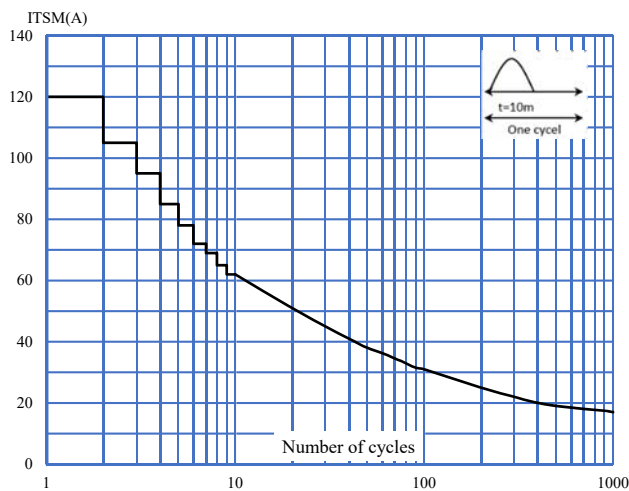


FIG.4: On-state characteristics (maximum values)

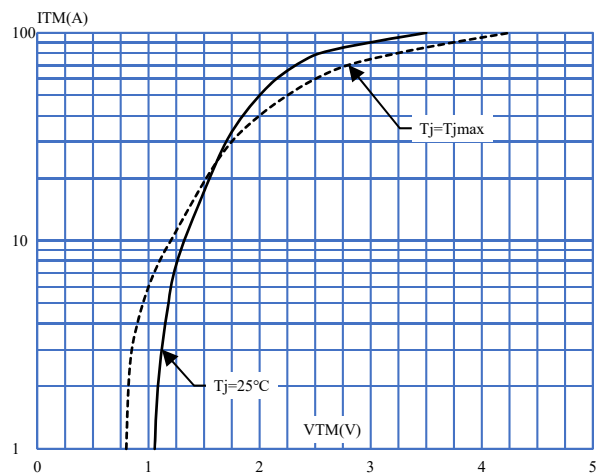


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t (I - II - III: $dI/dt < 50\text{A}/\mu\text{s}$; IV: $dI/dt < 10\text{A}/\mu\text{s}$)

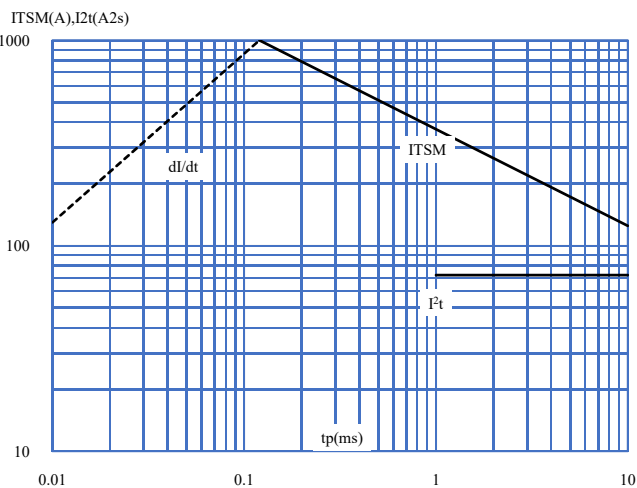
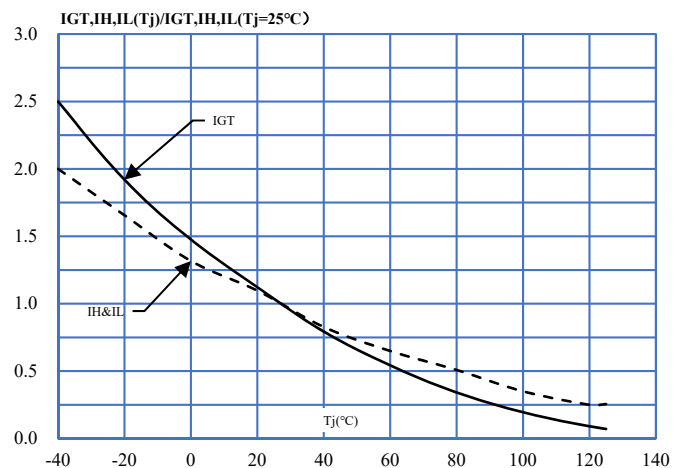


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

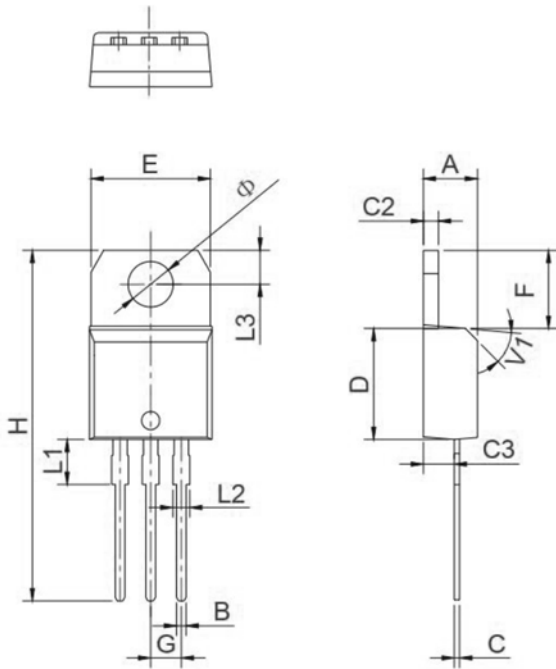




YCMB1215 Series

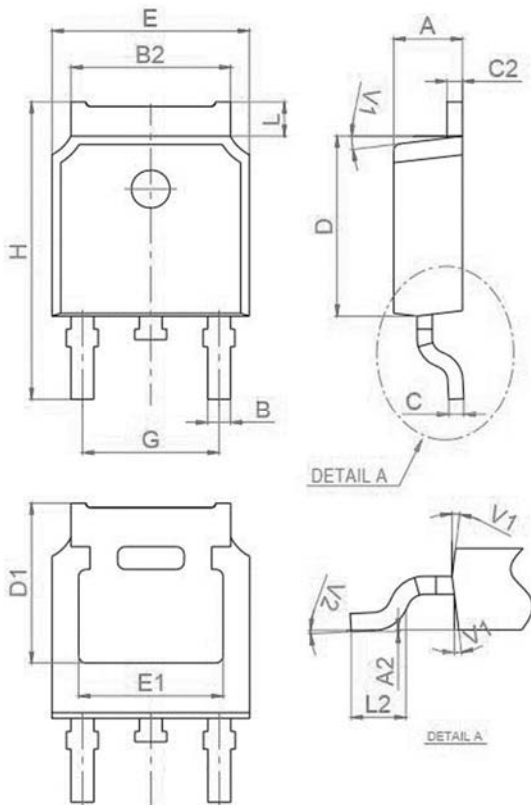
■ Outline Dimensions

➤ 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° | |
| Φ | 3.70 | 3.75 | 3.80 |

➤ TO-252-1 Package Outline Dimensions

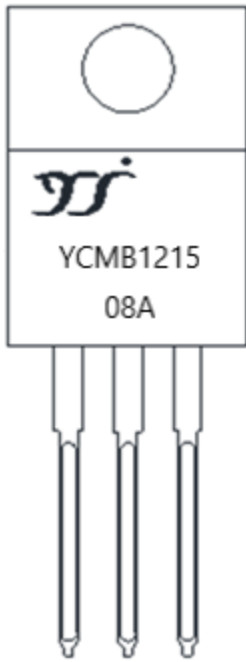


| Symbol | Min.(mm) | Typ.(mm) | Max.(mm) |
|--------|----------|----------|----------|
| A | 2.20 | | 2.40 |
| A2 | 0 | | 0.10 |
| B | 0.66 | | 0.86 |
| B2 | 5.10 | | 5.46 |
| C | 0.46 | | 0.58 |
| C2 | 0.44 | | 0.58 |
| D | 5.90 | | 6.30 |
| D1 | | 5.30 | |
| E | 6.40 | | 6.80 |
| E1 | 4.63 | | |
| 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° |

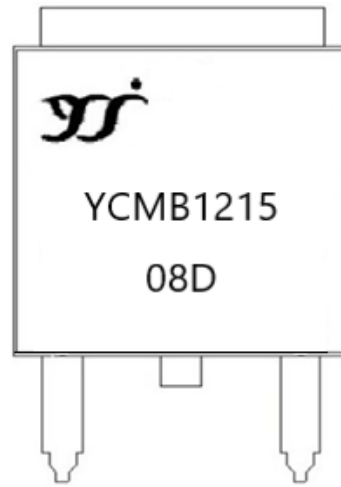


YCMB1215 Series

■ Marking Information



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



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



YCMB1215 Series

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