

12A 3Q Triac

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} (Q1) 35 mA

Applications

- General purpose switching and phase control
- General purpose switching

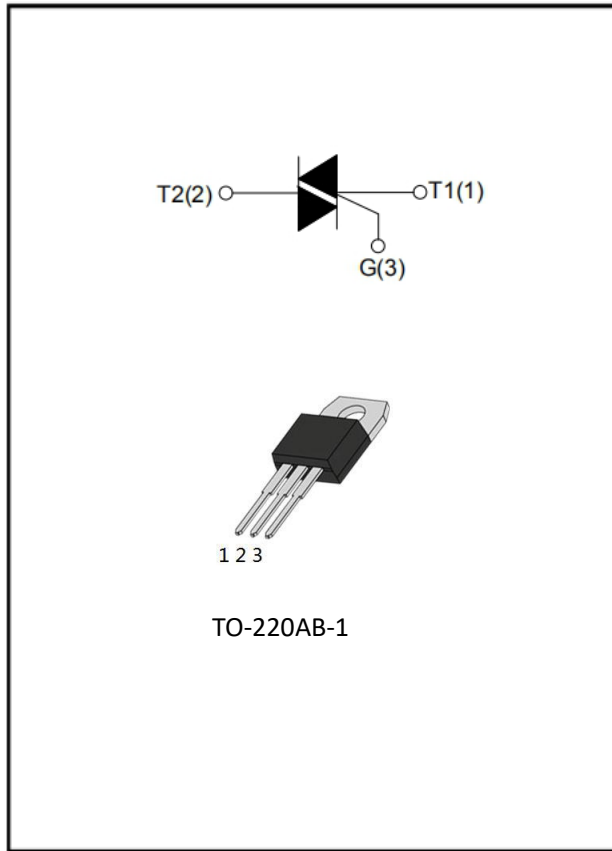
Mechanical Data

- Case Material: "Green" Molding Compound
- Package: TO-220AB-1

DEVICE	PACAKGE
ACYMB1215-08A	TO-220AB-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 ($T_j=25^{\circ}C$)	V_{DRM}		800	V
Repetitive peak reverse voltage ($T_j=25^{\circ}C$)	V_{RRM}		800	V
RMS on-state current	$I_{T(RMS)}$		12	A
Non-repetitive surge peak on-state current (full sine wave, $t_p=20ms, T_j=25^{\circ}C$)	I_{TSM}		120	A
I^2t value for fusing ($t_p=10ms$)	I^2t		78	A ² s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	di/dt	I - II - III	100	A/ μ s
Peak gate current	I_{GM}		4	A
Average gate power dissipation	$P_{G(AV)}$		1	W
Peak gate power	P_{GM}		5	W



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■Electrical Characteristics (T_j=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	QUADRANT	MIN	TYP	MAX
Gate trigger current	I _{GT}	mA	V _D =12V, R _L =33Ω	I - II - III			15
Gate trigger voltage	V _{GT}	V	V _D =12V, R _L =33Ω	I - II - III			1.5
Non-triggering gate voltage	V _{GD}	V	V _D =V _{DRM}	I - II - III	0.2		
Holding current	I _H	mA	I _T =100mA	I - II - III			10
Latching current	I _L	mA	I _G =3 I _{GT}	I - III			30
				II			40
Rate of rise of off-state voltage	dV/dt	V/μs	V _D =0.66×V _{DRM} T _j =125°C Gate open	I - II - III			500

■Static Characteristics

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	MAX
Peak on-state voltage	V _{TM}	V	I _{TM} =17A t _p =380μs	1.5
Peak off-state current	I _{DRM} I _{RRM}	μA	V _{DRM} = V _{RRM} , T _j =25°C	5
Peak reverse current		mA	V _{DRM} = V _{RRM} , T _j =125°C	1

■Thermal Resistance

PARAMETER		SYMBOL	UNIT	Pacakge	Value
Thermal Resistance (Typical)	Junction to case	R _{θJ-C}	°C/W	TO-220AB-1	2.3

■ Characteristics (Typical)

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

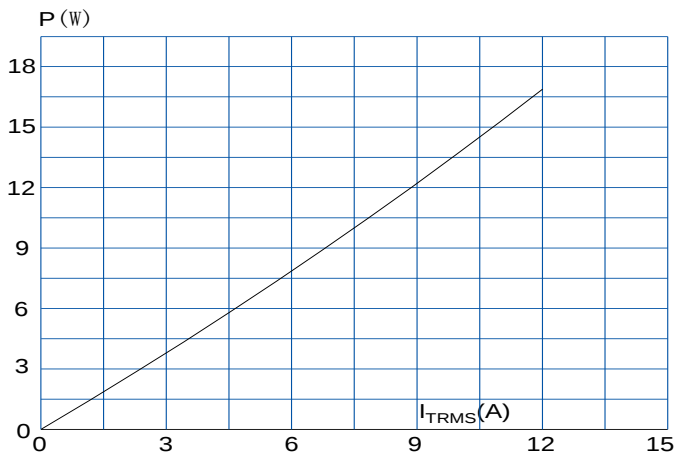


FIG.2: RMS on-state current versus case temperature

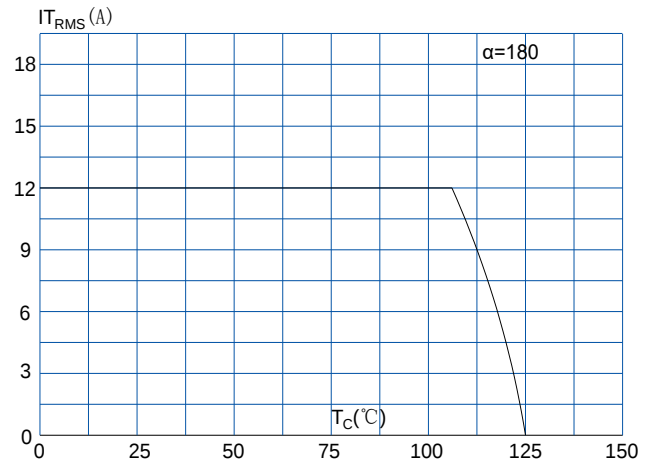


FIG.3: Surge peak on-state current versus number of cycles

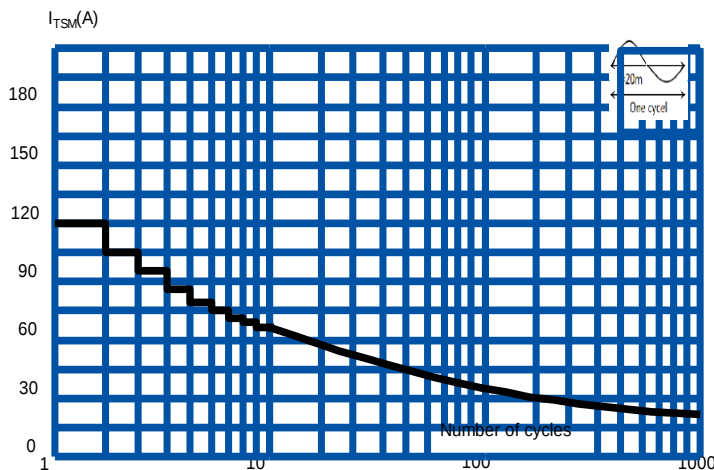


FIG.4: On-state characteristics (maximum values)

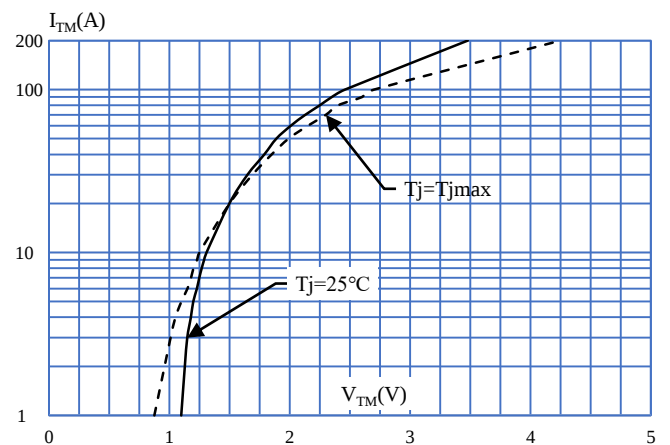


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20ms$, and corresponding value of $I_2 t$ ($dI/dt < 50A/\mu s$)

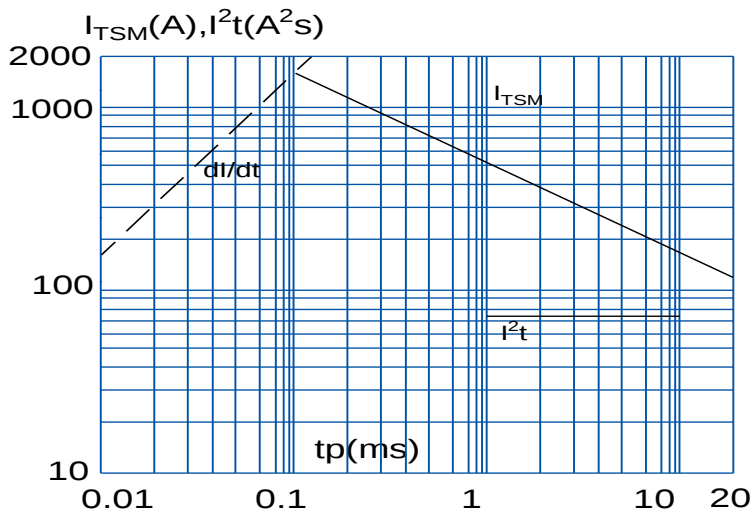
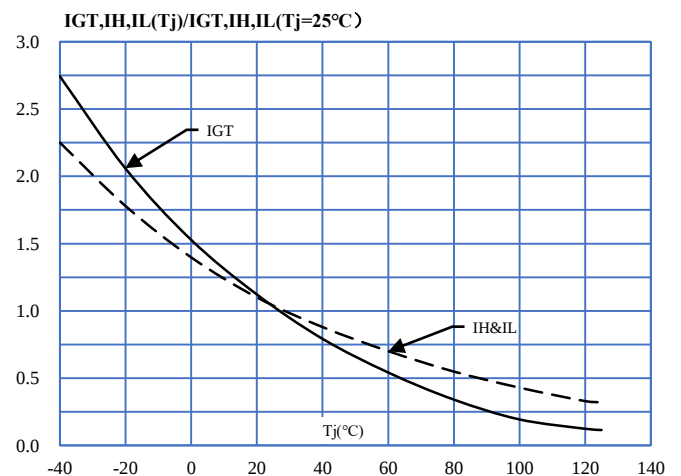


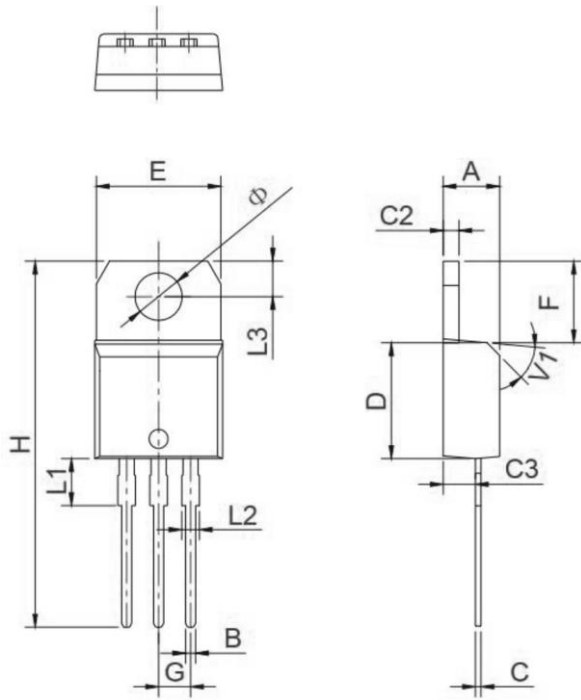
FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature





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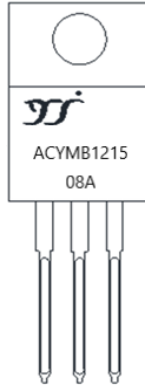
■ Outline Dimensions



TO-220AB-1

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

■ Marking information



(TO-220AB-1 Package)



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