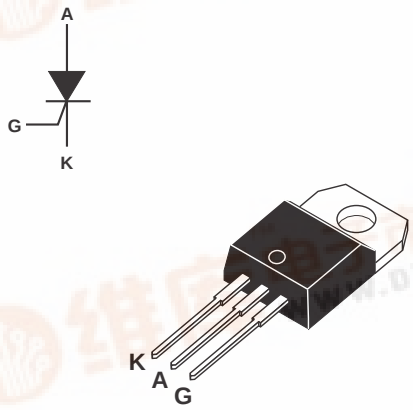
TYN210 ---> TYN1010

SCR



TO-220AB

FEATURES

- High surge capability
- High on-state current
- High stability and reliability

DESCRIPTION

The TYN210 ---> TYN1010 Family of Silicon Controlled Rectifiers uses a high performance glass passivated technology.

This general purpose Family of Silicon Controlled Rectifiers is designed for power supplies up to 400Hz on resistive or inductive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)	Tc = 100°C	10	A
$I_{T(AV)}$	Average on-state current (180° conduction angle, single phase circuit)	Tc = 100°C	6.4	A
I_{TSM}	Non repetitive surge peak on-state current (Tj initial = 25°C)	tp = 8.3ms	105	A
		tp = 10ms	100	
I^2t	I^2t value	tp = 10ms	50	A^2s
dI/dt	Critical rate of rise of on-state current Gate supply: I_G = 100mA dI_G/dt = 1A/µs		50	A/µs
Tstg Tj	Storage and operating junction temperature range		-40 to +150 -40 to +125	°C
Tl	Maximum lead soldering temperature during 10s at 4.5mm from case		260	°C

Symbol	Parameter	TYN					Unit
		210	410	610	810	1010	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage Tj = 125°C	200	400	600	800	1000	V

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
Rth (j-a)	Junction to ambient	60	°C/W
Rth (j-c) DC	Junction to case for DC	2.5	°C/W

GATE CHARACTERISTICS (maximum values)

$P_{G(AV)}$ = 1W P_{GM} = 10W (tp = 20µs) I_{FGM} = 4A (tp = 20µs) V_{RGM} = 5V

ELECTRICAL CHARACTERISTICS

Symbol	Test conditions			Value	Unit
I_{GT}	V_D = 12V (DC) R_L = 33Ω	Tj = 25°C	MAX.	15	mA
V_{GT}	V_D = 12V (DC) R_L = 33Ω	Tj = 25°C	MAX.	1.5	V
V_{GD}	$V_D = V_{DRM}$ R_L = 3.3kΩ	Tj =110°C	MIN.	0.2	V
tgt	$V_D = V_{DRM}$ I_G = 40mA dI_G/dt = 0.5A/µs	Tj = 25°C	TYP.	2	µs
I_L	$I_G = 1.2I_{GT}$	Tj = 25°C	TYP.	50	mA
I_H	I_T = 100mA Gate open	Tj = 25°C	MAX.	30	mA
V_{TM}	I_{TM} = 20A tp = 380µs	Tj = 25°C	MAX.	1.6	V
I_{DRM} I_{RRM}	V_{DRM} rated V_{RRM} rated	Tj = 25°C	MAX.	0.01	mA
		Tj = 110°C	MAX.	2	
dV/dt	Linear slope up to V_D = 67% V_{DRM} gate open	Tj = 110°C	MIN.	200	V/µs
tq	V_D=67%V_{DRM} I_{TM}= 20A V_R= 25V dI_{TM}/dt=30 A/µs dV_D/dt= 50V/µs	Tj = 110°C	TYP.	70	µs

Fig. 1: Maximum average power dissipation versus average on-state current.

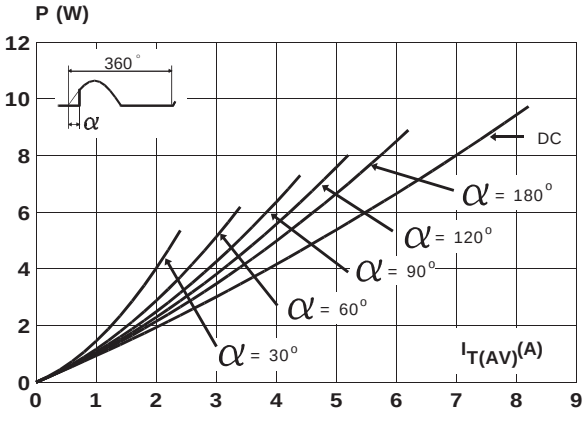


Fig. 2: Correlation between maximum average power dissipation and maximum allowable temperatures (Tamb and Tcase) for different thermal resistances heatsink + contact.

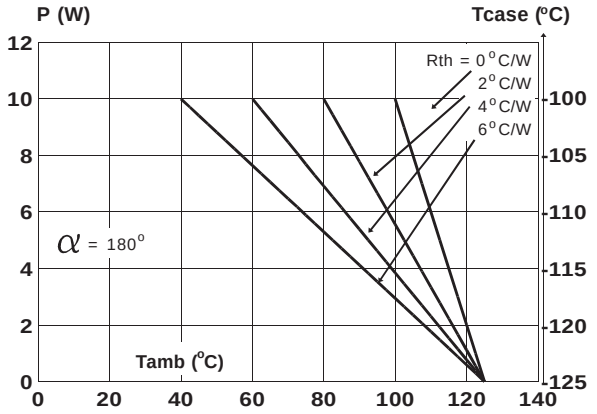


Fig. 3: Average on-state current versus case temperature.

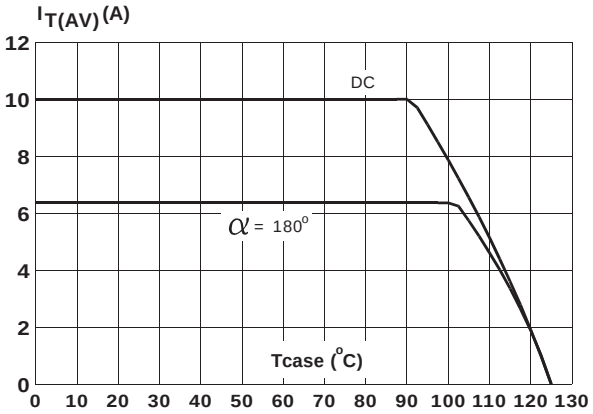


Fig. 4: Relative variation of thermal impedance versus pulse duration.

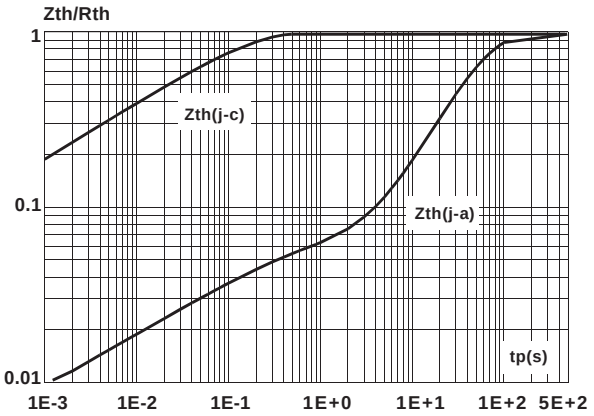


Fig. 5: Relative variation of gate trigger current versus junction temperature.

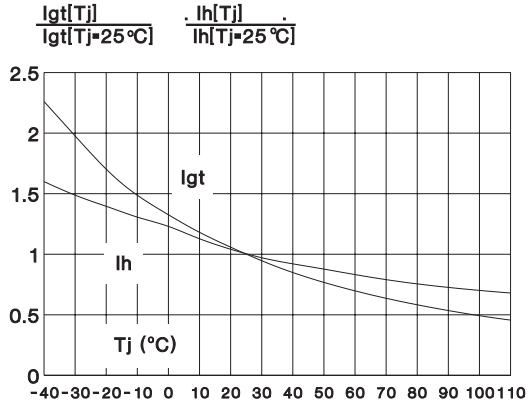


Fig. 6: Non repetitive surge peak on-state current versus number of cycles.

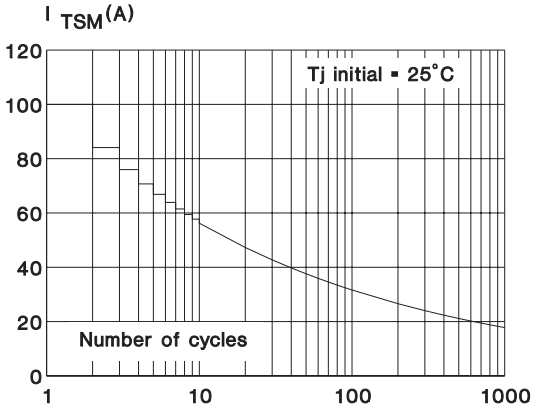


Fig. 7: Non repetitive surge peak on-state current for a sinusoidal pulse with width: $t \leq 10ms$, and corresponding value of I^2t.

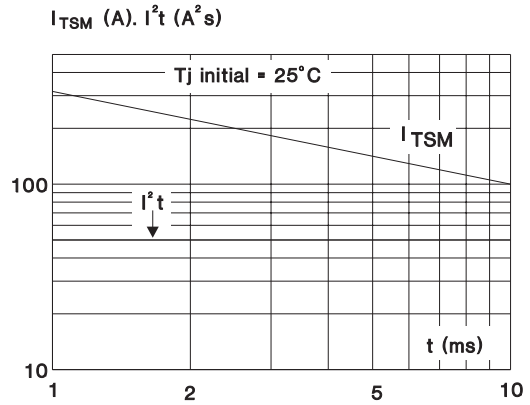
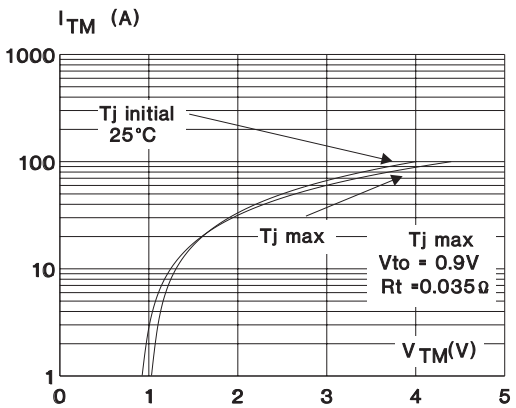
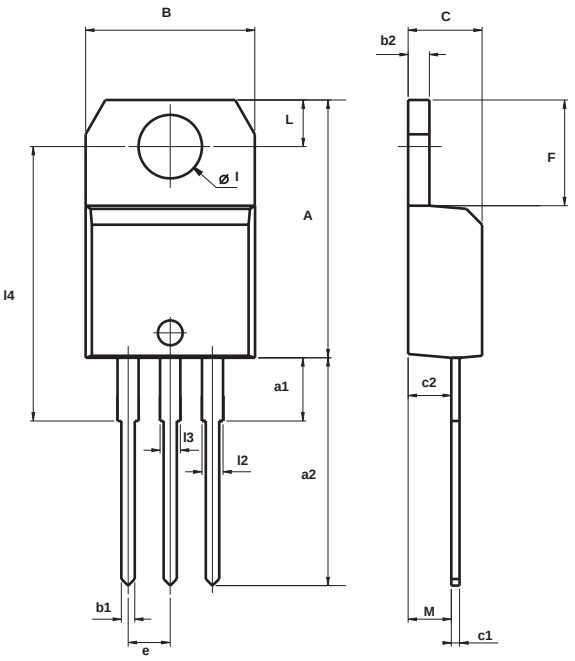


Fig. 8: On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA

TO-220AB (Plastic)



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.20		15.90	0.598		0.625
a1		3.75			0.147	
a2	13.00		14.00	0.511		0.551
B	10.00		10.40	0.393		0.409
b1	0.61		0.88	0.024		0.034
b2	1.23		1.32	0.048		0.051
C	4.40		4.60	0.173		0.181
c1	0.49		0.70	0.019		0.027
c2	2.40		2.72	0.094		0.107
e	2.40		2.70	0.094		0.106
F	6.20		6.60	0.244		0.259
I	3.75		3.85	0.147		0.151
I4	15.80	16.40	16.80	0.622	0.646	0.661
L	2.65		2.95	0.104		0.116
I2	1.14		1.70	0.044		0.066
I3	1.14		1.70	0.044		0.066
M		2.60			0.102	

OTHER INFORMATION

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
TYNxx10	TYNxx10	TO-220AB	2.3 g	250	Bulk

- Epoxy meets UL94,V0
- Cooling method: C
- Recommended torque value: 0.8 m.N.
- Maximum torque value: 1 m.N.