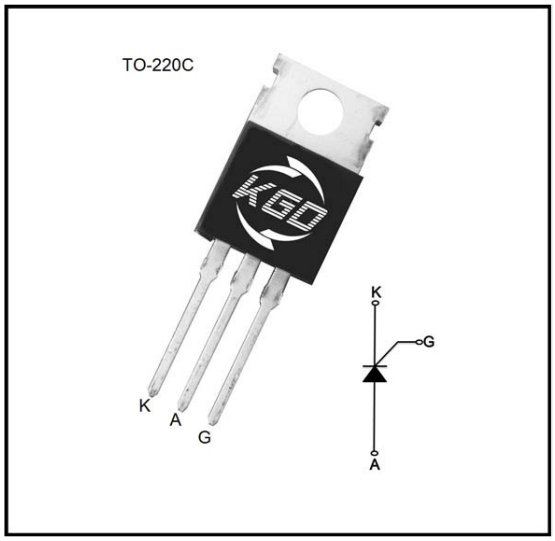
TYN640/TYN840 Series

- **Description:**
  High current density due to singel mesa trchnology;

- **Applications:**
  TYN640/TYN840 series of silicon controlled rectifiers are specifically designed for medium power switching and phase control applications.
  TYN640/TYN840 series are suitable for general purpose applications,a high gate sensitivity is required.

- **Features:**
  Blocking voltage to 600 to 800V
  On-state RMS current to 40A
  Non-repetitive peak on-state current to 460A



- **Absolute Maximum Ratings**

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DRM}	Repetitive peak off-state voltage	T_J=25℃	600	800	V
V_{RRM}	Repetitive peak Reverse voltage	T_J=25℃	600	800	V
$I_{T(RMS)}$	RMS on-state current (all conduction angels)	T_c=95℃	-	40	A
$I_{T(av)}$	Average on-state current (half sine wave)	T_c=95℃	-	25	A
I_{TSM}	Non repetitive surge peak on-state current (half sine cycle, T_J=25℃)	f=50Hz t=10ms	-	460	A
		f=50Hz t=8.3ms	-	490	
I^2t	I^2t Value for fusing	tp=10ms	-	1060	A^2S
di_T/dt	Repetitive rate of rise of on-state current after triggering I_{TM} =20A I_G=50mA di_G/dt 50mA/ms		-	50	A/μs
I_{GM}	Peak gate current	T_P=20μs, T_J=125℃	-	4	A
P_{GM}	Peak gate power		-	5	W
$P_{G(AV)}$	Average gate power dissipation	T_J=125℃	-	1	W
T_{STG}	Storage junction temperature range		-40	150	℃
T_J	Operrating junction temperature range		-40	125	℃

TYN640/TYN840 Series

● Electrical Characteristics

Symbol	Conditions	TYN640/TYN840			Unit
		MIN.	TYP.	MAX.	
I_{GT}	V_D=12V R_L=33Ω	5	15	35	mA
V_{GT}		-	0.8	1.5	V
V_{GD}	V_D=V_{DRM}, R_L=3.3KΩ,T_J=125℃	-	-	0.2	V
I_L	I_T=1.2I_{GT}	-	60	150	mA
I_H	Holding current	-	20	75	mA
dv/dt	V_{DM}=67%V_{DRM},gate open,T_J=125℃	1000	-	-	V/μs

● Electrical Characteristics

Symbol	Parameter		Numerical(MAX)	Unit
V_{TM}	I_T=80A,tp=380μs	T_J=25℃	1.8	V
I_{DRM} I_{RRM}	V_D=V_{DRM},V_R=V_{RRM}	T_J=25℃	10	μA
		T_J=125℃	4	mA

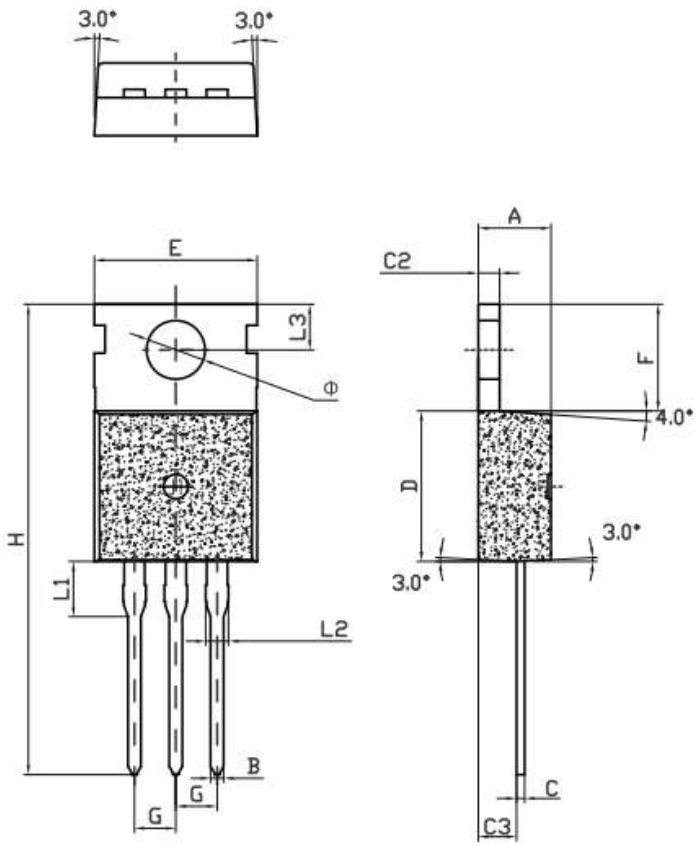
● Thermal Characteristics

Symbol	Parameter	Numerical(MAX)	Unit
$R_{th(j\text{-}mb)}$	thermal resistance from junction to mounting base	0.78	℃/W

TYN640/TYN840 Series

- **Package Outline Dimensions**

TO-220C



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4		4.6	0.173		1.181
B	0.7		0.9	0.027		0.035
C	0.45		0.6	0.018		0.024
C2	1.23		1.32	0.048		0.052
C3	2.2		2.6	0.086		0.102
D	8.9		9.9	0.350		0.390
E	9.9		10.3	0.390		0.406
F	6.3		6.9	0.248		0.272
G		2.54			0.1	
H	28.0		29.8	11.0		11.7
L1		3.2			0.126	
L2	1.14		1.7	0.045		0.067
L3	2.65		2.95	0.104		0.116
Φ		3.6			0.142	

TYN640/TYN840 Series

FIG.1: Maximum power dissipation versus average on-state current(half cycle)

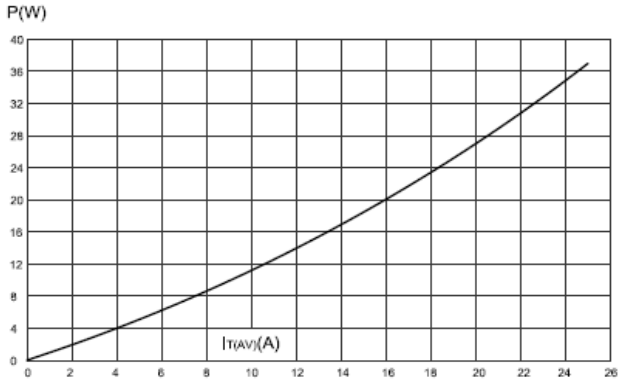


FIG.2: RMS on-state current versus case temperature(full cycle)

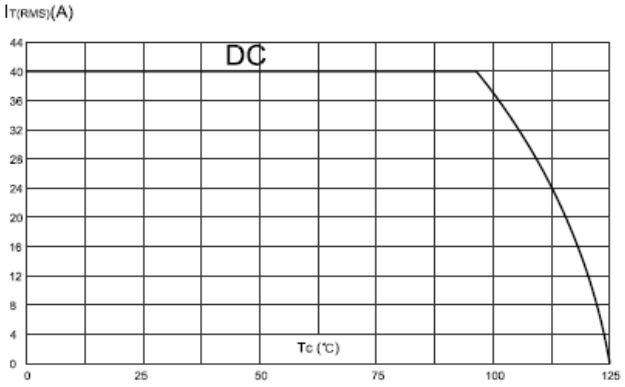


FIG.3:On-state characteristics (maximum values).

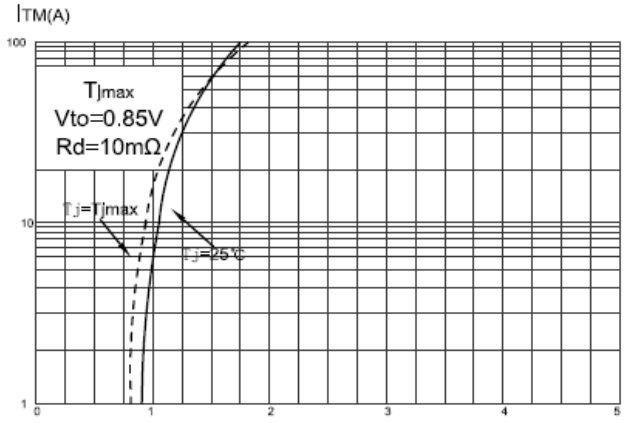


FIG.4: Surge peak on-state current versus number of cycles.

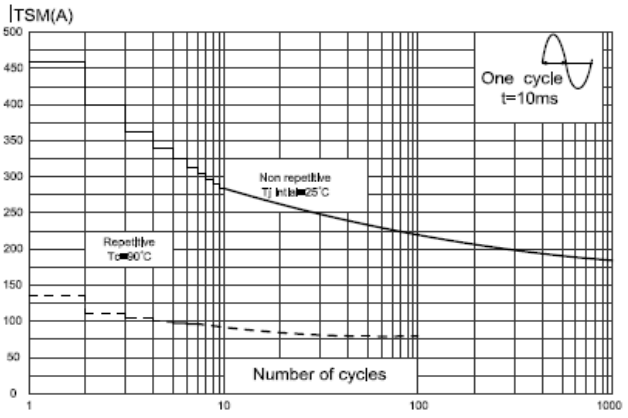


FIG.5:Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms,and corresponding value of I²t.

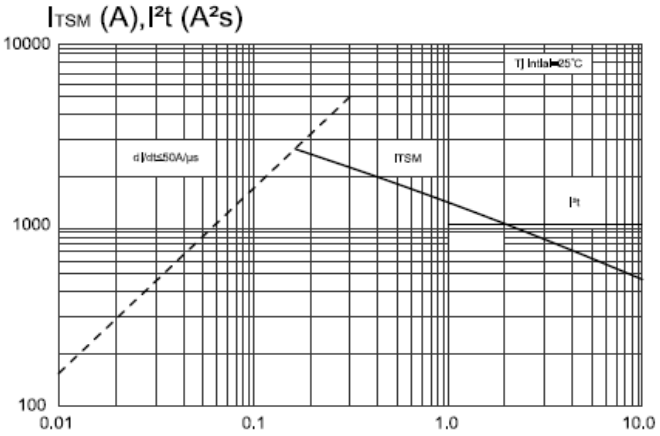


FIG.6:Relative variations of gate trigger current,holding current and latching current versus junction temperature(typical values)