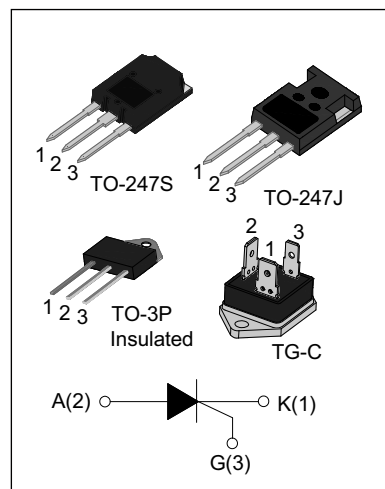


**TYN1655 Series 55A SCRs**

Rev.6.0

DESCRIPTION:

With high ability to withstand the shock loading of large current, TYN1655 SCRs provide high dv/dt rate with strong resistance to electromagnetic interference. They are especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc. From all three terminals to external heatsink, TYN1655 provides a rated insulation voltage of 1600 V_{RMS}.

**MAIN FEATURES**

Symbol	TYN1655	
V _{DRM} / V _{RRM}	1600V	
I _{T(RMS)}	55A	
I _{GT}	10 - 50 mA	

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T _{stg}	-40-150	°C
Operating junction temperature range		T _j	-40-125	°C
Repetitive peak off-state voltage		V _{DRM}	1600	V
Repetitive peak reverse voltage		V _{RRM}	1600	V
RMS on-state current	TO-3P Ins (T _C =80°C)	I _{T(RMS)}	55	A
	TO-247S/TO-247J (T _C =83°C)			
	TG-C (T _C =82°C)			
Non repetitive surge peak on-state current (tp=10ms)		I _{TSM}	520	A
I ² t value for fusing (tp=10ms)		I ² t	1350	A ² s
Critical rate of rise of on-state current (I _G =2×I _{GT})		di/dt	150	A/μs



Peak gate current	I_{GM}	5	A
Peak gate power	P_{GM}	10	W
Average gate power dissipation ($T_j=125^{\circ}\text{C}$)	$P_{G(AV)}$	1	W

ELECTRICAL CHARACTERISTICS ($T_j=25^{\circ}\text{C}$ unless otherwise specified)

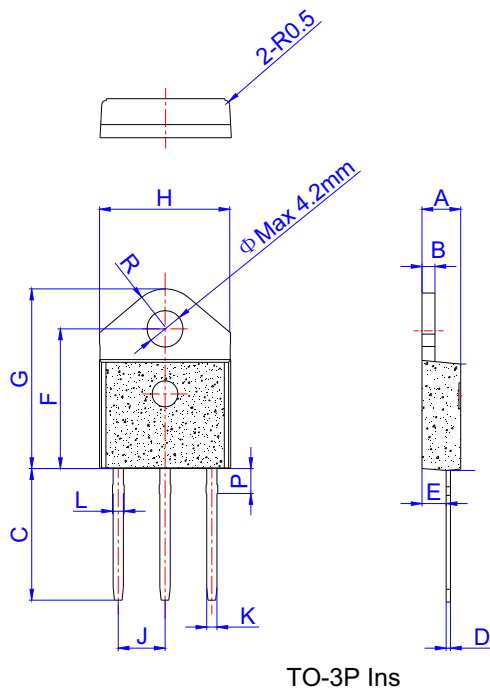
Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12\text{V } R_L=33\Omega$	10	15	50	mA
V_{GT}		-	-	1.5	V
V_{GD}	$V_D=V_{DRM} T_j=125^{\circ}\text{C } R_L=3.3\text{K}\Omega$	0.2	-	-	V
I_L	$I_G=1.2I_{GT}$	-	-	100	mA
I_H	$I_T=500\text{mA}$	-	-	80	mA
dV/dt	$V_D=2/3V_{DRM} T_j=125^{\circ}\text{C}$ Gate Open	700	-	-	V/ μs

STATIC CHARACTERISTICS

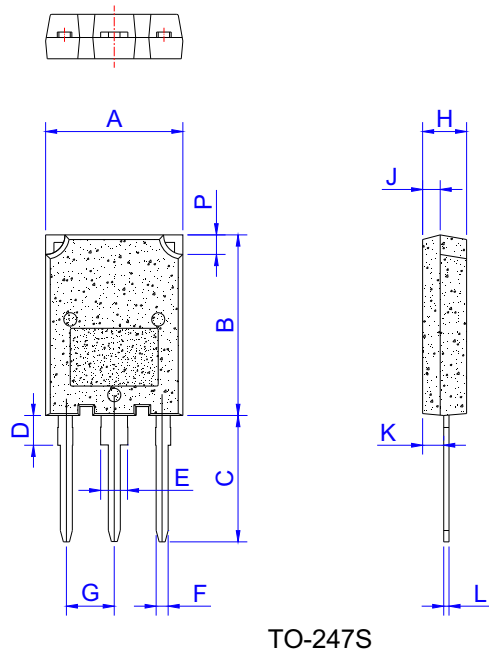
Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM}=80\text{A } t_p=380\mu\text{s}$	$T_C=25^{\circ}\text{C}$	1.6	V
I_{DRM}	$V_D=V_{DRM} V_R=V_{RRM}$	$T_C=25^{\circ}\text{C}$	10	μA
I_{RRM}		$T_C=125^{\circ}\text{C}$	6	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-3P Ins	0.65	$^{\circ}\text{C/W}$
		TO-247S/ TO-247J	0.60	
		TG-C	0.62	



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	1.45		1.55	0.057		0.061
C	14.35		15.60	0.565		0.614
D	0.50		0.70	0.020		0.028
E	2.70		2.90	0.106		0.114
F	15.80		16.50	0.622		0.650
G	20.40		21.10	0.803		0.831
H	15.10		15.50	0.594		0.610
J	5.40		5.65	0.213		0.222
K	1.10		1.40	0.043		0.055
L	1.35		1.50	0.053		0.059
P	2.80		3.00	0.110		0.118
R		4.35			0.171	



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.1		16.1	0.594		0.634
B	19.8		20.8	0.78		0.819
C	13.8		14.8	0.543		0.583
D	3.00		4.00	0.118		0.157
E	2.75		3.35	0.108		0.132
F	1.30		1.50	0.051		0.059
G	5.10		5.80	0.201		0.228
H	4.50		5.50	0.177		0.217
J	1.45		2.15	0.057		0.085
K	1.90		2.80	0.075		0.110
L	0.55		0.80	0.022		0.031
P	2.00		2.40	0.079		0.094



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

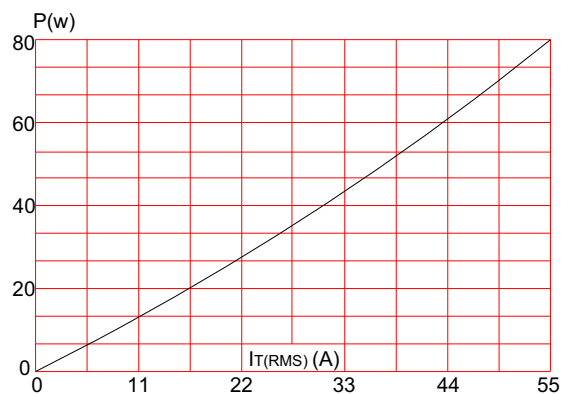


FIG.3: Surge peak on-state current versus number of cycles

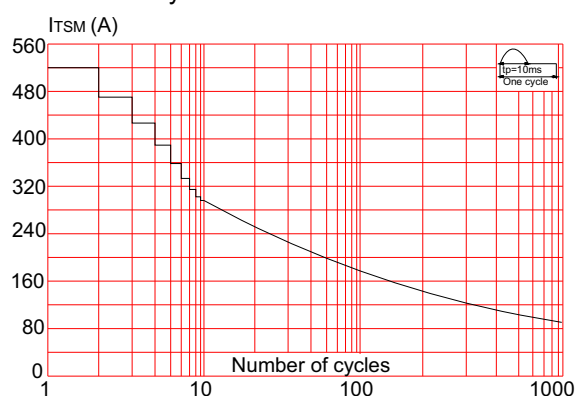


FIG.2: RMS on-state current versus case temperature

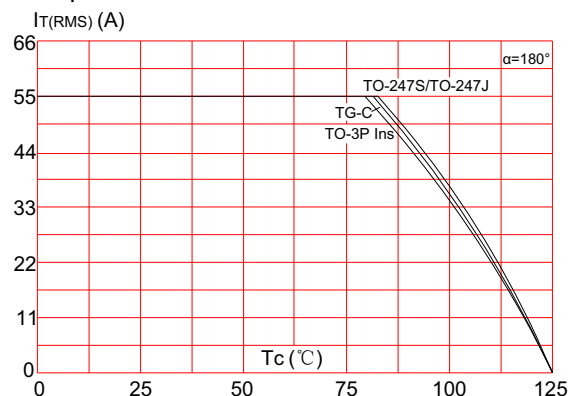


FIG.4: On-state characteristics (maximum values)

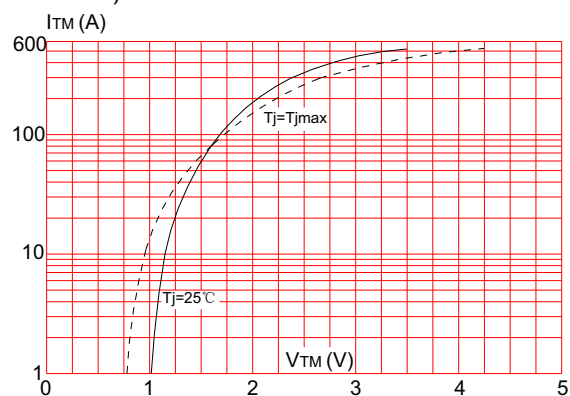


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t ($di/dt < 150\text{A}/\mu\text{s}$)

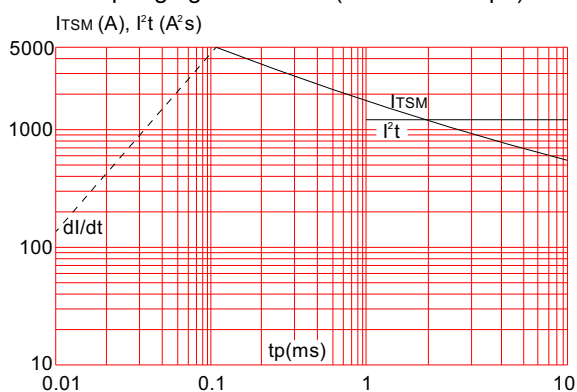


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

