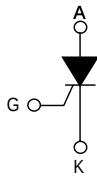


STYN212(S) thru STYN1612(S)

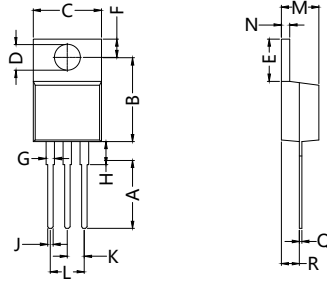
Discrete Thyristors(SCRs)



STYN212-STYN1612

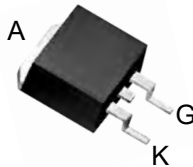


Dimensions TO-220AB

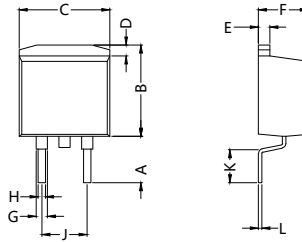


Dim.	Millimeter	
	Min.	Max.
A	12.70	13.97
B	14.73	16.00
C	9.91	10.66
ØD	3.54	4.08
E	5.85	6.85
F	2.54	3.18
G	1.15	1.65
H	2.79	5.84
J	0.64	1.01
K	2.45BSC	
L	5.05BSC	
M	4.32	4.82
N	1.14	1.39
Q	0.35	0.56
R	2.29	2.79

Dimensions TO-263(D²PAK)



STYN212S-STYN1612S



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	5.00	5.60	0.197	0.220
B	9.32	10.52	0.367	0.414
C	9.60	10.40	0.378	0.409
D	1.10	1.40	0.043	0.055
E	1.20	1.50	0.047	0.059
F	4.32	4.82	0.170	0.190
G	1.15	1.65	0.045	0.065
H	0.64	1.00	0.025	0.039
J	4.80	5.20	0.189	0.205
K	2.80	3.90	0.110	0.154
L	0.30	0.45	0.012	0.018



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter			Value	Unit
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)		$T_c = 105^{\circ}\text{C}$	12	A
$I_{T(AV)}$	Average on-state current (180° conduction angle)		$T_c = 105^{\circ}\text{C}$	8	A
I_{TSM}	Non repetitive surge peak on-state current	$t_p = 8.3 \text{ ms}$	$T_j = 25^{\circ}\text{C}$	146	A
		$t_p = 10 \text{ ms}$		140	
I^2t	I^2t value for fusing	$t_p = 10 \text{ ms}$	$T_j = 25^{\circ}\text{C}$	98	A^2s
di/dt	Critical rate of rise of on-state current $I_G = 2 \times I_{GT}$, $t_r \leq 100 \text{ ns}$	$F = 60 \text{ Hz}$	$T_j = 125^{\circ}\text{C}$	50	$\text{A}/\mu\text{s}$
I_{GM}	Peak gate current	$t_p = 20 \mu\text{s}$	$T_j = 125^{\circ}\text{C}$	4	A
$P_{G(AV)}$	Average gate power dissipation		$T_j = 125^{\circ}\text{C}$	1	W
T_{stg} T_j	Storage junction temperature range Operating junction temperature range Maximum peak reverse gate voltage			- 40 to +150 - 40 to +125	$^{\circ}\text{C}$
V_{RGM}				5	V

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STYN212(S) thru STYN1612(S)

Discrete Thyristors(SCRs)

ELECTRICAL CHARACTERISTICS (T_j = 25°C, unless otherwise specified)

■ STANDARD

Symbol	Test Conditions			STYNx12(S)	Unit
I _{GT}	V _D = 12 V R _L = 33 W		MIN.	2	mA
			MAX.	15	
V _{GT}			MAX.	1.3	V
V _{GD}	V _D = V _{DRM} R _L = 3.3 kW	T _j = 125°C	MIN.	0.2	V
I _H	I _T = 500 mA Gate open		MAX.	30	mA
I _L	I _G = 1.2 I _{GT}		MAX.	60	mA
dV/dt	V _D = 67 % V _{DRM} Gate open	T _j = 125°C	MIN.	200	V/μs
V _{TM}	I _{TM} = 40 A t _p = 380 μs	T _j = 25°C	MAX.	1.6	V
V _{t0}	Threshold voltage	T _j = 125°C	MAX.	0.85	V
R _d	Dynamic resistance	T _j = 125°C	MAX.	30	mW
I _{DRM} I _{RRM}	V _{DRM} = V _{RRM}	T _j = 25°C	MAX.	5	μA
		T _j = 125°C		2	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
R _{th(j-c)}	Junction to case (DC)		1.3	°C/W
R _{th(j-a)}	Junction to ambient	TO-220AB	60	°C/W
		S = 1.0 cm ² TO-263	45	

S= copper surface under tab

PRODUCT SELECTOR

Part Number	Voltage (xxx)	Sensitivity	Package
STYNx12S	200~1600	15 mA	TO-263
STYNx12	200~1600	15 mA	TO-220AB

OTHER INFORMATION

Part Number	Marking	Weight	Base Quantity	Packing mode
STYNx12S	STYN x12S	0.5 g	50	Tube
STYNx12	STYN x12	2.3 g	250	Bulk

Note: x = voltage

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STYN212(S) thru STYN1612(S)

Discrete Thyristors(SCRs)

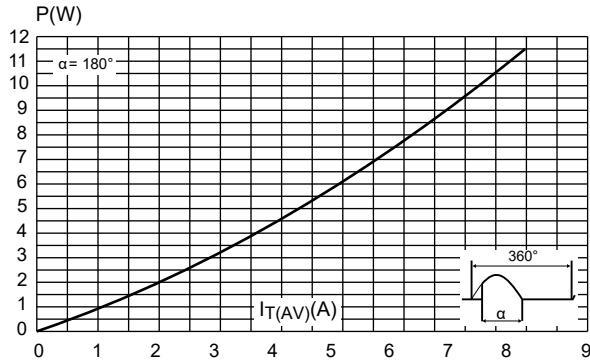


Fig.1 Maximum average power dissipation versus average on-state current

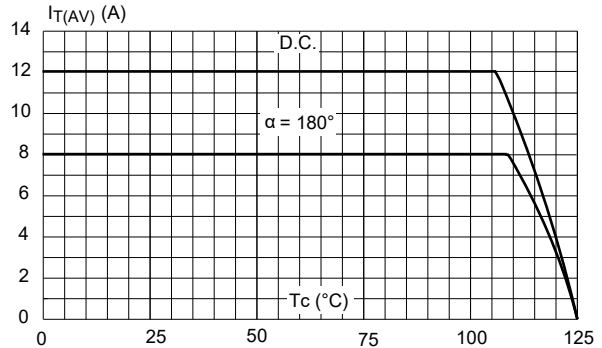


Fig.2 Average and DC on-state current versus case temperature

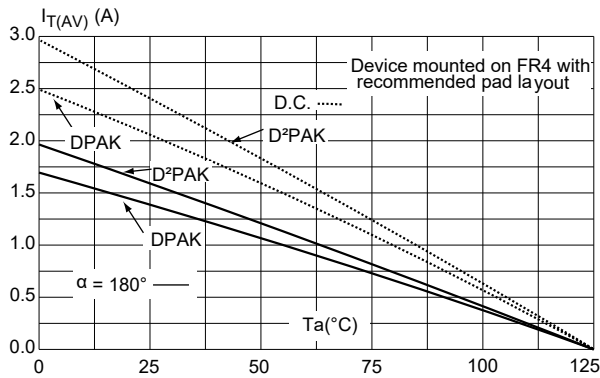


Fig.3 Average and DC on-state current versus ambient temperature (DPAK, D2PAK)

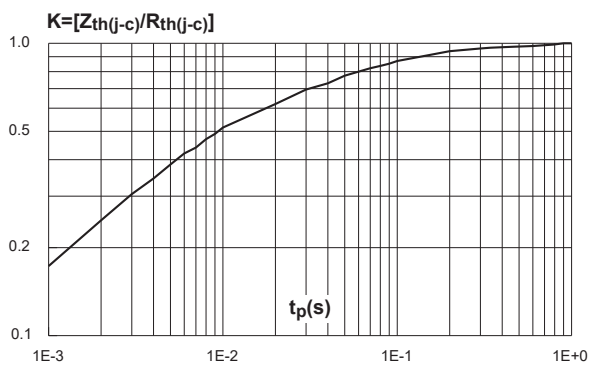


Fig.4 Relative variation of thermal impedance junction to case versus pulse duration

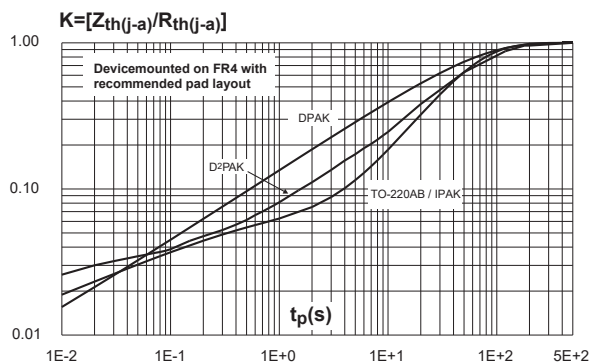


Fig.5 Relative variation of thermal impedance junction to ambient versus pulse duration

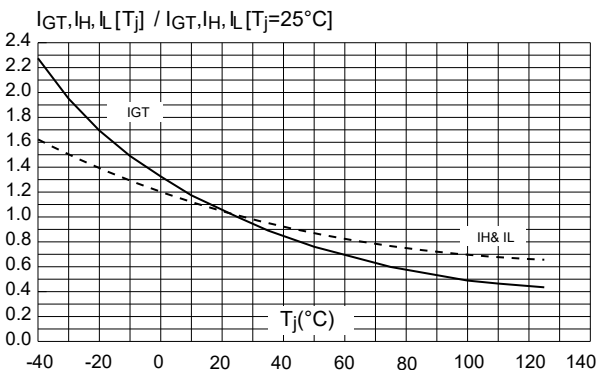


Fig.6 Relative variation of gate trigger, latching and holding current versus junction temperature

STYN212(S) thru STYN1612(S)

Discrete Thyristors(SCRs)

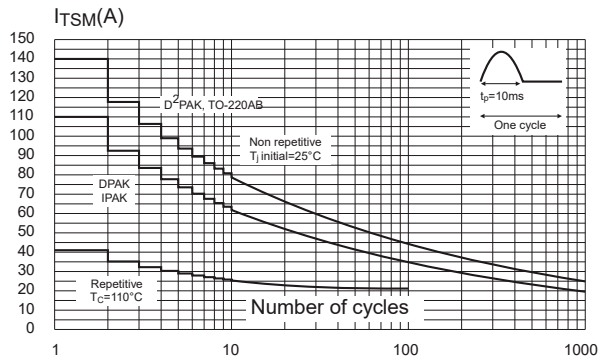


Fig.7 Surge peak on-state current versus number of cycles

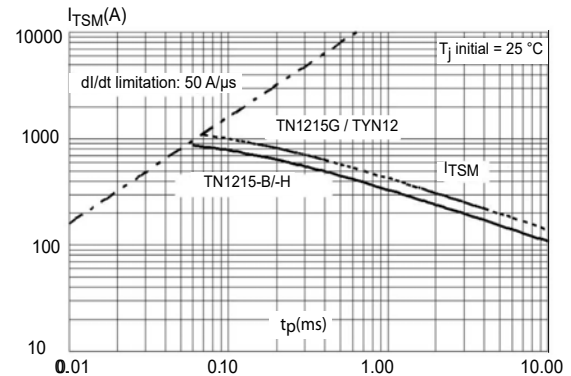


Fig.8 Non repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10$ ms

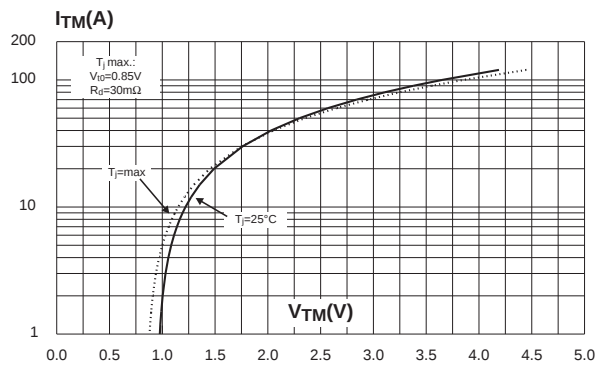


Fig.9 On- state characteristics (maximum values)

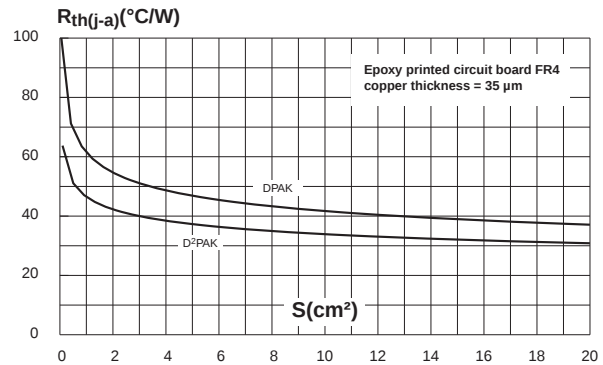
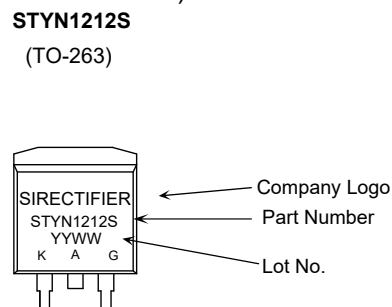
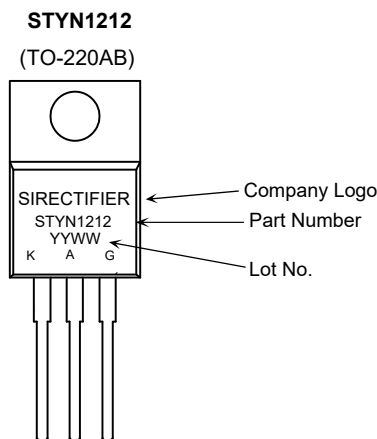


Fig.10 Thermal resistance junction to ambient versus copper surface under tab (DPAK and D²PAK)

Marking



Ordering Information

Part Number	Package	Shipping	Marking Code
STYN1212	TO-220AB	50pcs / Tube	STYN1212
STYN1212S	TO-263	50pcs / Tube or 800pcs / Tape & Reel	STYN1212S

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