NELL SEMICONDUCTOR

1940PT Series RoHS

Phase Control Thyristors

Features

1. Center amplifying gate.
2. Metal Case With Ceramic insulator.
3. Typical application
   - DC motor control
   - Controlled DC power supplies
   - AC controllers

Ordering code

1940	PT	xx	E	0
(1)	(2)	(3)	(4)	(5)

(1) Maximum average on-state current , A

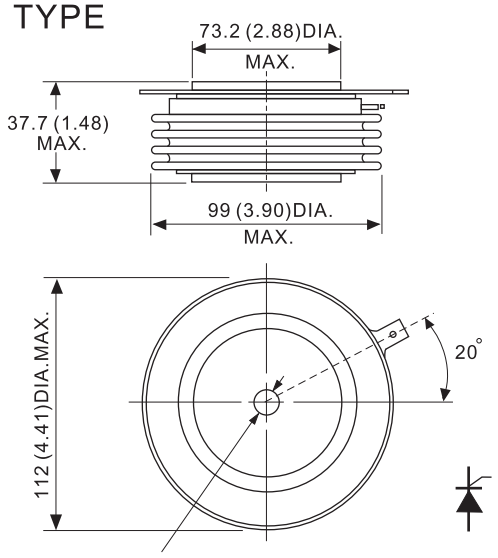
(2) For Phase Control Thyristor

(3) Voltage code , code x 100 = V_{RRM} / V_{DRM}

(4) package style : A , B , C , D ,E for Disc Type

(5) Terminal types
0 - for eyelet

E TYPE



All dimensions in millimeters (inches)

Electrical Characteristics

Symbol	Parameter	Condition	Value			Unit
			Min.	Type	Max.	
$I_{T(AV)}$	Mean on-state current	180° half sine wave , 50Hz Double side cooled , Tc =55°C			1940	A
$I_{T(RMS)}$	Max. RMS on-state current	Double side cooled , Ths=55°C			3080	A
V_{RRM} V_{DRM}	Repetitive peak off-state voltage Repetitive peak reverse voltage	V_{DRM} & V_{RRM} t_p=10ms V_{DsM} & V_{RsM} = V_{DRM} & V_{RRM} + 100V	4500		5200	V
I_{TSM}	Surge on-state current	10 ms half sine wave V_R = 0.6V_{RRM}			27.5	KA
I^2t	For fusing coordination				3780	KA^2s
$V_{T(TO)}$	Threshold voltage				1.4	V
r_t	On-state slope resistance				0.31	mΩ
V_{TM}	Max. Forward voltage drop	I_{TM}=3000A , F=24.0KN			2.1	V
I_H	Holding current	V_A=12V , I_A=1A			300	mA
$d_{i/dt}$	Cirtical rate of rise of turned-on current	Gate drive 20V , 20Ω, tr ≤ 0.5 μs			150	A/μs
t_q	Typical turn-off time				300	μs
I_{RRM} I_{DRM}	Repetitive peak reverse current	V_R=V_{RRM} V_D=V_{DRM}			250	mA
$d_{v/dt}$	Cirtical rate of rise of off-state voltage	V_{DM}=0.67 V_{DRM}			500	V/μs
P_G	Max. average gate power	Square wavepulse width 100 μs			10	W
P_{GM}	Max. peak gate power square				150	W
I_{GT}	Gate trigger current	V_A=12V , I_A=1A	40		400	mA
V_{GT}	Gate trigger voltage		0.8		4	V
V_{GD}	DC voltage notto trigger	At76% V_{DRM} , T_j=T_j MAX			0.25	V
I_{FGM}	Max.peak positive gate current	T_j=Tj max , t_p ≤ 3s			30	A
V_{FGM}	Max.peak positive gate current				30	V
V_{RGM}	Max.peak positive gate current				0.25	V
T_j	Max.operating temperaturerange				125	°C
T_{stg}	Storage temperature		- 40		125	°C
$R_{th(j-h)}$	Thermal resistance(junction to heatsink)	Double side cooled , clamping force 8.0 KN			0.019	°C/W
F_m	Mounting force		35		47	KN
w_t	Approximate weight			1600		g

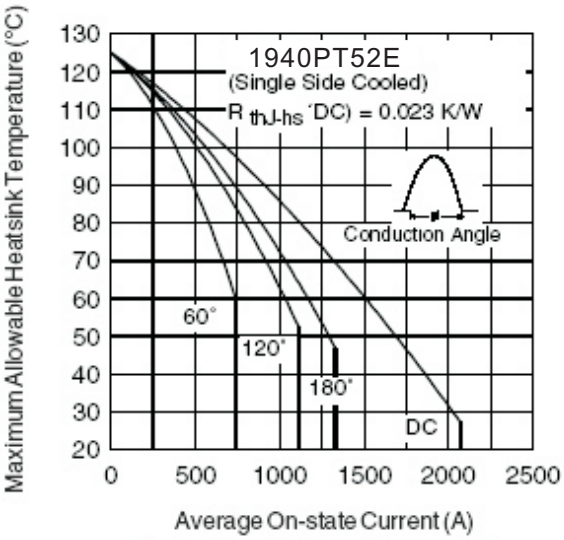


Fig. 1 - Current Ratings Characteristics

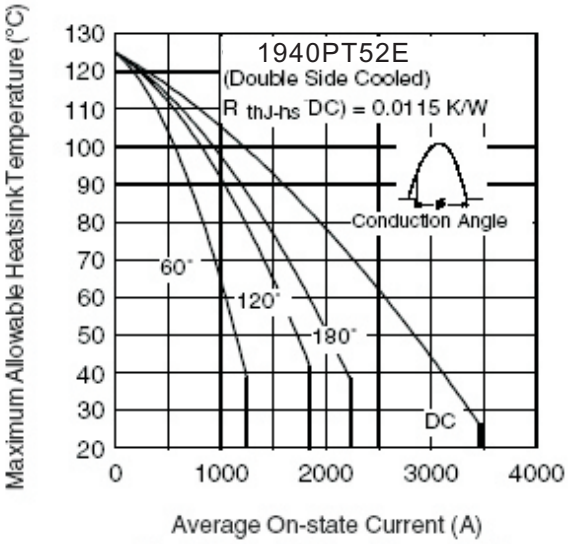


Fig. 2 - Current Ratings Characteristics

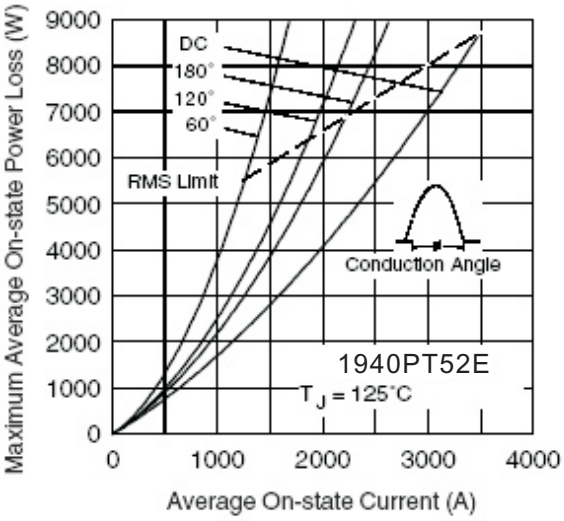


Fig. 3- On-state Power Loss Characteristics

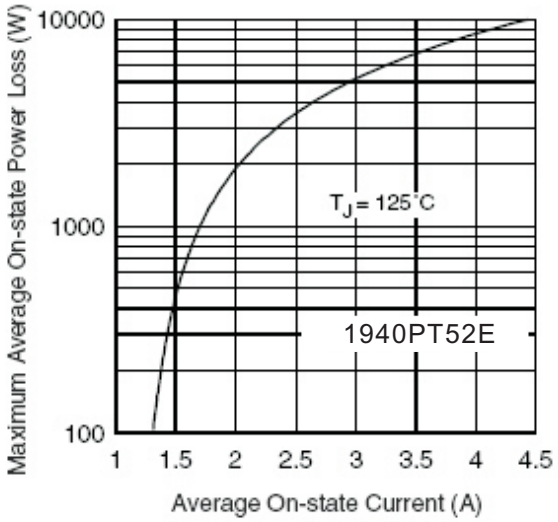


Fig. 4- On-state Power Loss Characteristics

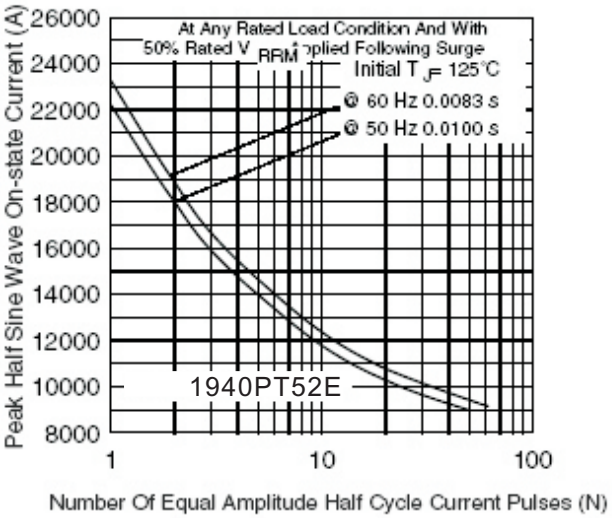


Fig.5 - Maximum Non-Repetitive Surge Current
Single and Double Side Cooled

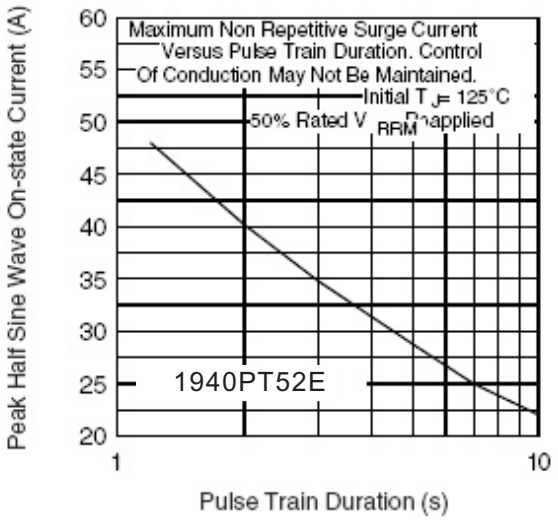


Fig. 6 - Maximum Non-Repetitive Surge Current
Single and Double Side Cooled