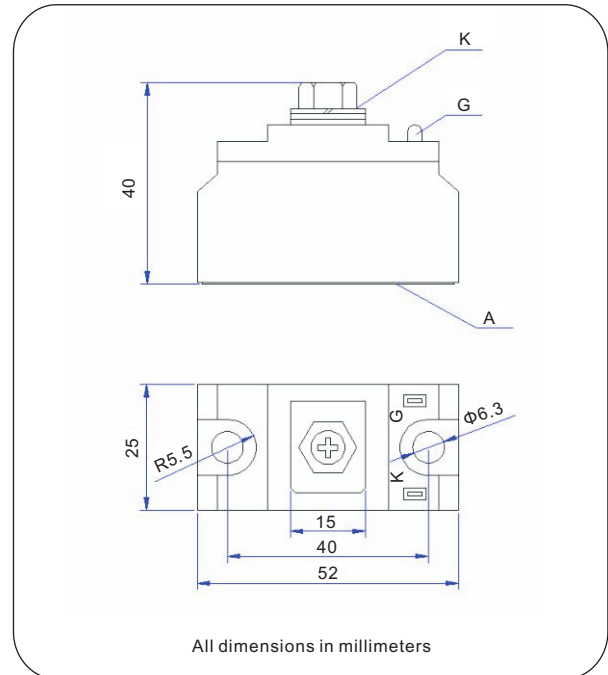


Phase Control SCR, 90A



FEATURES

- High surge capability
- High voltage input rectification
- Designed and qualified for industrial level
- Compliant to RoHS

APPLICATIONS

- AC switches
- High voltage input rectification (soft start)
- High current crow-bar
- Other phase-control circuits
- AC/DC electric machine control
- Heating control
- Dimming
- Converters



PRODUCT SUMMARY

Diode variation	Single SCR
$I_{T(AV)}$	90A
V_{DRM}/V_{RRM}	1200V, 1600V
V_{TM}	1.6V
I_{GT}	100 mA
T_J	-40°C to 125°C

MAJOR RATINGS AND CHARACTERISTICS

PARAMETER	TEST CONDITIONS	VALUES	UNITS
$I_{T(AV)}$	Sinusoidal waveform	90	A
$I_{T(RMS)}$	Lead current limitation	141	
V_{RRM}/V_{DRM}	Range	1200~1600	V
I_{TSM}		2000	A
V_T	$I_T = 270 A, T_J = 25^\circ C$	1.6	V
dV/dt		500	V/ μs
dI/dt		150	A/ μs
T_J		- 40 to 125	°C

Nell High Power Products

VOLTAGE RATINGS			
PART NUMBER	V_{RRM}/V_{DRM} , MAXIMUM REPETITIVE PEAK AND OFF-STATE VOLTAGE V	V_{RSM} , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	I_{RRM}/I_{DRM} AT 125 °C mA
NT90PT12S	1200	1300	10
NT90PT16S	1600	1700	

ABSOLUTE MAXIMUM RATINGS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum average on-state current	$I_{T(AV)}$	$T_C = 85\text{ °C}$, 180° conduction half sine wave, one-side heat-dissipation		90	A
Maximum continuous RMS on-state current as AC switch	$I_{T(RMS)}$			141	
Maximum peak, one-cycle non-repetitive surge current	I_{TSM}	10 ms sine pulse, no voltage reapplied	Initial $T_J = T_J$ maximum	2000	
Maximum I^2t for fusing	I^2t			20400	A ² s
Maximum peak on-state forward voltage	V_{TM}	270 A , $T_J = 25\text{ °C}$		1.6	V
Maximum rate of rise of turned-on current	dI/dt	$T_J = 25\text{ °C}$, $I_{GM} = 1.5\text{ A}$, $t_r \leq 0.5\mu\text{s}$		150	A/ μs
Maximum holding current	I_H	$T_J = 25\text{ °C}$	Anode supply = 6 V resistive load	100	mA
Maximum latching current	I_L			400	
Maximum reverse and direct leakage current	I_{RRM}/I_{DRM}	$T_J = 25\text{ °C}$	$V_R = \text{Rated } V_{RRM}/V_{DRM}$ ($V_R = 2/3 V_{RRM}/V_{DRM}$)	1.0	
		$T_J = 125\text{ °C}$		10	
Maximum rate of rise of off-state voltage	dV/dt	$T_J = 125\text{ °C}$		500	V/ μs

TRIGGERING					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum peak gate power	P_{GM}	$T = 30\text{ }\mu\text{s}$		10	W
Maximum average gate power	$P_{G(AV)}$			3	
Maximum required gate voltage to trigger	V_{GT}	$T_J = 25\text{ °C}$	Anode supply = 6 V resistive load	1.5	V
Maximum required gate current to trigger	I_{GT}			100	mA
Maximum DC gate voltage not to trigger	V_{GD}	$T_J = 125\text{ °C}$, $V_{DRM} = \text{Rated value}$		0.25	V
Maximum DC gate current not to trigger	I_{GD}			10	mA

THERMAL AND MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum junction temperature range	T_J			- 40 to 125	°C
Maximum storage temperature range	T_{Stg}			- 40 to 150	
Maximum thermal resistance junction to case	R_{thJC}	DC operation		0.28	°C/W
Maximum thermal resistance junction to ambient	R_{thJA}			40	
Typical thermal resistance case to heatsink	R_{thCS}	Mounting surface, smooth and greased		0.2	
Approximate weight				85	g
				3	oz.
Mounting torque			For copper plate ,M6 For connection terminal ,M5	4	N.m
				4	