

ELECTRO POWER

NEP2543ZC300 - Power Thyristor

3000 V_{DRM}; 2543 A avg



"The Standard Source for Industrial Electronic Power Parts"

HIGH POWER THYRISTOR FOR PHASE CONTROL APPLICATIONS

Features:

- . All Diffused Structure
- . Spoke Amplifying Gate Configuration
- . High dV/dt Capability
- . Pressure Assembled Device

ELECTRICAL CHARACTERISTICS AND RATINGS

Blocking - Off State

Device Type	V _{RRM} (1)	V _{DRM} (1)	V _{RSM} (1)
NEP2543 ZC300	3000	3000	3100

V_{RRM} = Repetitive peak reverse voltage

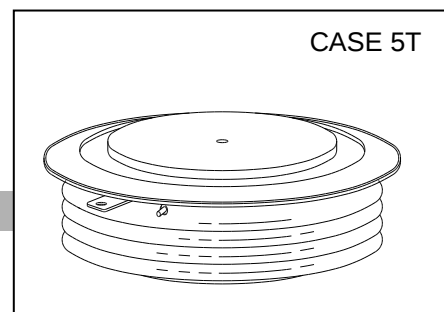
V_{DRM} = Repetitive peak off state voltage

V_{RSM} = Non repetitive peak reverse voltage (2)

Repetitive peak reverse leakage and off state leakage	I _{RRM} / I _{DRM}	10 mA 200 mA (3)
Critical rate of voltage rise	dV/dt (4)	1000 V/μsec

Conducting - on state

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Average value of on-state current	I _{T(AV)}		2500		A	Sinewave, 180° conduction, T _c =70°C
RMS value of on-state current	I _{TRMS}		4000		A	Nominal value
Peak one cycle surge (non repetitive) current	I _{TSM}		40000 36000		A A	8.3 msec (60Hz), sinusoidal wave-shape, 180° conduction, T _j = 125 °C 10.0 msec (50Hz), sinusoidal wave-shape, 180° conduction, T _j = 125 °C
I square t	I ² t		5.1x10 ⁶		A ² s	8.3 msec and 10.0 msec
Latching current	I _L		1500		mA	V _D = 24 V; R _L = 12 ohms
Holding current	I _H		250		mA	V _D = 24 V; I = 2.5 A
Peak on-state voltage	V _{TM}		1.60		V	I _{TM} = 3000 A
Critical rate of rise of on-state current (5)	di/dt		300		A/μs	Switching from V _{DRM} ≤ 800 V, non-repetitive
Critical rate of rise of on-state current	di/dt		100		A/μs	Switching from V _{DRM} ≤ 800 V



Notes:

All ratings are specified for T_j=25 °C unless otherwise stated.

(1) All voltage ratings are specified for an applied 50Hz/60Hz sinusoidal waveform over the temperature range -40 to +125 °C.

(2) 10 msec. max. pulse width

(3) Maximum value for T_j = 125 °C.

(4) Minimum value for linear and exponential waveshape to 70% rated V_{DRM}. Gate open. T_j = 125 °C.

(5) Non-repetitive value.

Gating

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Peak gate power dissipation	P_{GM}		200		W	$t_p = 40 \text{ us}$
Average gate power dissipation	$P_{G(AV)}$		5		W	
Peak gate current	I_{GM}		20		A	
Gate current	I_{GT}		300		mA	
Gate voltage	V_{GT}	0.30	3.5		V	

Dynamic

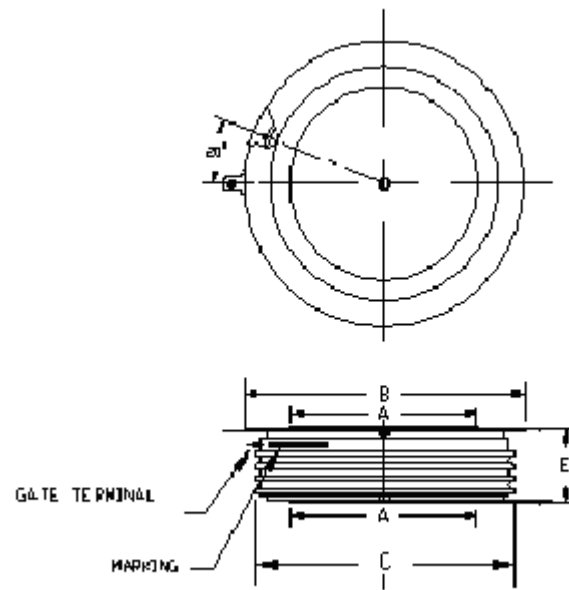
Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Delay time	t_d				μs	
Turn-off time (with $V_R = -50 \text{ V}$)	t_q				μs	

THERMAL AND MECHANICAL CHARACTERISTICS AND RATINGS

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Operating temperature	T_j	-40	+125		$^{\circ}\text{C}$	
Storage temperature	T_{stg}	-40	+150		$^{\circ}\text{C}$	
Thermal resistance - junction to case	$R_{\theta(j-c)}$		0.012		$^{\circ}\text{C/W}$	Double sided cooled Single sided cooled
Thermal resistance - case to sink	$R_{\theta(c-s)}$		0.002		$^{\circ}\text{C/W}$	Double sided cooled * Single sided cooled *
Mounting force	P	8000	10000		lb. kN	
Weight	W				Lb. Kg.	

* Mounting surfaces smooth, flat and greased

Note : for case outline and dimensions, see case outline drawing



A: 73 MM
B: 109 MM
C: 99 MM
E: 36 MM