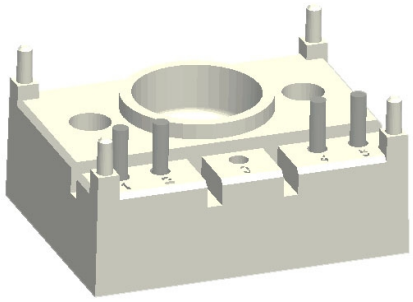
Anti-parallel Thyristor Module, 70A



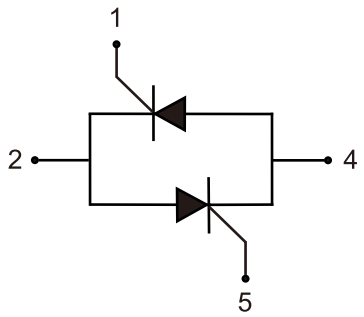
FEATURES

- Compact Design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic(DBC)
- Glass passived thyristor chips
- Up to 1600v reverse voltage

APPLICATIONS

- Soft starters
- Battery charges
- Light control
- Power converters
- Heat and temperature control

"**KQ**" Circuit Configuration :



PRODUCT SUMMARY	
$I_{T(RMS)}$	72A

FORWARD CONDUCTION				
PARAMETER	**SYMBOL**	**TEST CONDITIONS**	**VALUES**	**UNIT**
Maximum RMS on-state current	$I_{T(RMS)}$	W1C Sin. 180°Ts=100℃	50	A
		W1C Sin. 180°Ts=85℃	72	
Maximum peak, one-cycle , on-state non-reptitive surge current	I_{TSM}	t = 10ms T_J=25℃	1000	
		t = 10ms T_J=125℃	900	
Maximum I^2t for fusing	I^2t	T=8.3...10ms T_J=25℃	5.0	kA^2s
		T=8.3...10ms T_J=125℃	4.0	
Maximum Off-state repeat average current	I_{DD}/I_{RD}	$V_{RD}=V_{RRM}$ T_J=25℃	0.5	mA
		$V_{RD}=V_{RRM}$ T_J=125℃	15	
Turn-off time	tq	T_J=125℃	80	μs
Maximum on-state voltage drop	V_{TM}	I_{TM} = 120A, T_J = 25°C, 180° conduction	1.8	V
Maximum holding current	I_H	T_J = 25°C	120	mA
Maximum latching current	I_L		150	

ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS

TYPE NUMBER	VOLTAGE CODE	V_{RRM}/V_{DRM}, MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V	V_{RSM}/V_{DSM}, MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	I_{RRM}/I_{DRM} AT 150 °C mA
NK70KQ...B	08	800	900	12
	12	1200	1300	
	16	1600	1700	

BLOCKING

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNIT
RMS isolation Voltage	V_{ISO}	50 Hz, circuit to base, all terminals shorted	2500 (1 min) 3000 (1 s)	V
Maximum rate of rise of turned-on current	dI/dt	T_J = 25°C, I_{GM} = 1.5A, t_r ≤0.5 μs	50	A/μs
Critical rate of rise of off-state voltage	dV/dt	T_J=125℃	1000	V/μs

TRIGGERING					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNIT
Maximum required DC gate voltage to trigger	V_{GT}	T_J = 25°C	Anode supply = 6V, resistive load; R_a = 1Ω	0.7 to 2.0	V
Maximum required DC gate current to trigger	I_{GT}			20 to 100	mA
Maximum gate voltage that will not trigger	V_{GD}	T_J = T_J maximum, 66.7% V_{DRM} = applied		0.25	V
Maximum gate current that will not trigger	I_{GD}			5	mA

THERMAL AND MECHANICAL SPECIFICATIONS

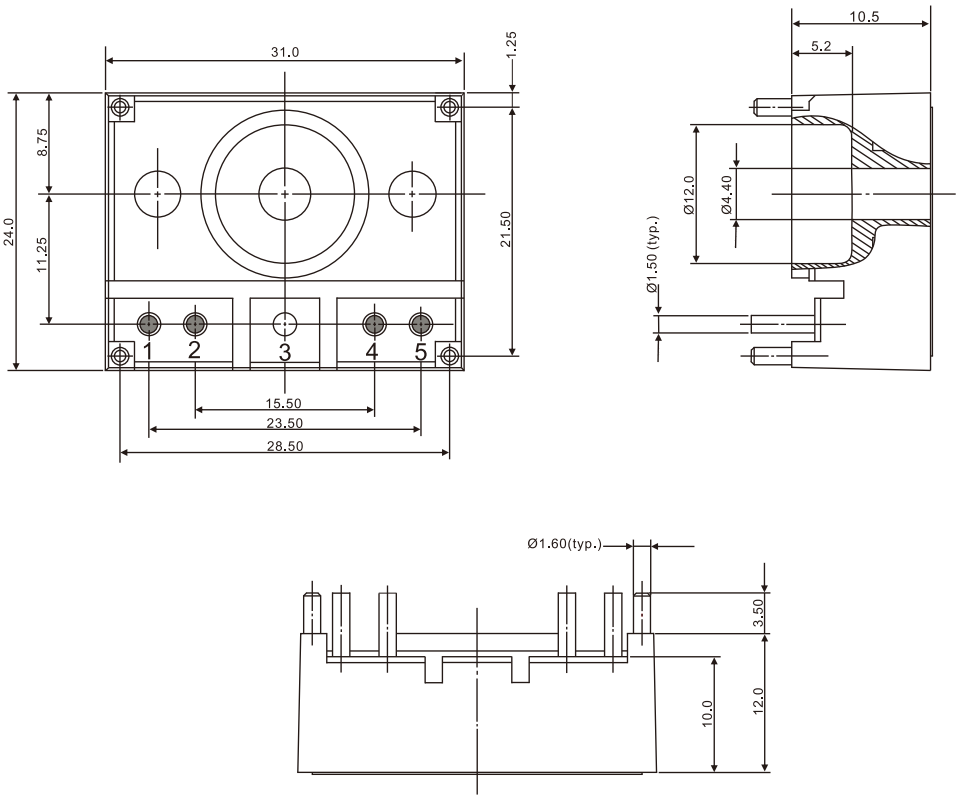
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNIT
Maximum junction operating temperature range	T_J		-40 to 150	°C
Maximum storage temperature range	T_{stg}		-40 to 150	
Maximum thermal resistance, junction to case per junction	R_{thJC}	DC operation	0.8	°C/W
Maximum thermal resistance, case to heatsink per module	R_{thCS}	Mounting surface, smooth, flat and greased	0.18	
Mounting torque, ±10% module to heatsink, M4		A mounting compound is recommended and the torque should be rechecked after a period of 3 hours to allow for the spread of the compound. Lubricated threads.	1.5	N·m
Approximate weight			13	g
			0.46	oz.

Ordering Information Table

Device code

NK	70	KQ	12B
1	2	3	4

1 - Nell's Low profile module (Nell-Top 1)
2 - Current rating, 70 for $I_{T(RMS)}$ = 72A
3 - Circuit configuration type
4 - Voltage code x 100 = V_{DRM}/V_{RRM}



All dimensions in millimeters