

Netrol-NACGL.75T-P6/VN Current Transducer

$I_{PN}=75A$

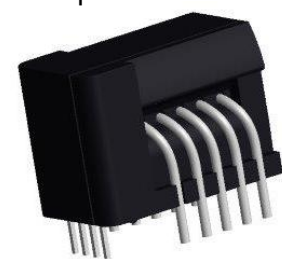
The Netrol-NACGL.75T-P6/VN Current Transducer is for the electronic measurement of DC, AC or pulsed currents, with galvanic separation between the primary circuit and the secondary circuit.

Features

- Closed loop multi-range current transducer
- Voltage output
- Unipolar supply voltage.

Standards

- EN50178:2017
- IEC61010-1:2010
- IEC62109-1:2010



Typical application

- Solar inverter
- Uninterruptible Power Supplies (UPS)
- Switched model power supplies (SMPS)
- Frequency converter
- Battery supplied application
- Static converter for DC motor drives

Absolute rating

Parameter	Symbol	Unit	Specification			Conditions
			Min	Typical	Max	
Maximum supply voltage	$U_{C\ max}$	V		5	7	
Maximum primary current	$I_{P\ max}$	A			$10\times I_{PN}$	
Ambient storage temperature	T_S	°C	-40		105	
Ambient operating temperature	T_A	°C	-40		105	
Electrostatic discharge voltage	V_{ESD}	kV			4	HBM
Primary busbar temperature	$T_{B\ max}$	°C			110	

Insulation coordination

Parameter	Symbol	Unit	Specification			Conditions
			Min	Typical	Max	
Dielectric withstand voltage	V_D	kV			4.1	RMS voltage for AC test 50Hz, 1min
Impulse withstand voltage	V_{Ni}	kV			7.5	1.2/50us
Insulation resistance	R_{INS}	MΩ	500			500V
Clearance distance	d_{CI}	mm	7.5			Shortest distance through air
Creepage distance	d_{CP}	mm	7.5			Shortest path along device body
Comparative tracking index	CTI	V		600		
Case material	-	-		V0		According to UL 94

Electrical parameters

At $T_A=25^{\circ}C$, $U_C=+5\ V$, $N_p=1\ turn$, $R_L=10\ k\Omega$, internal refernece unless otherwise noted.

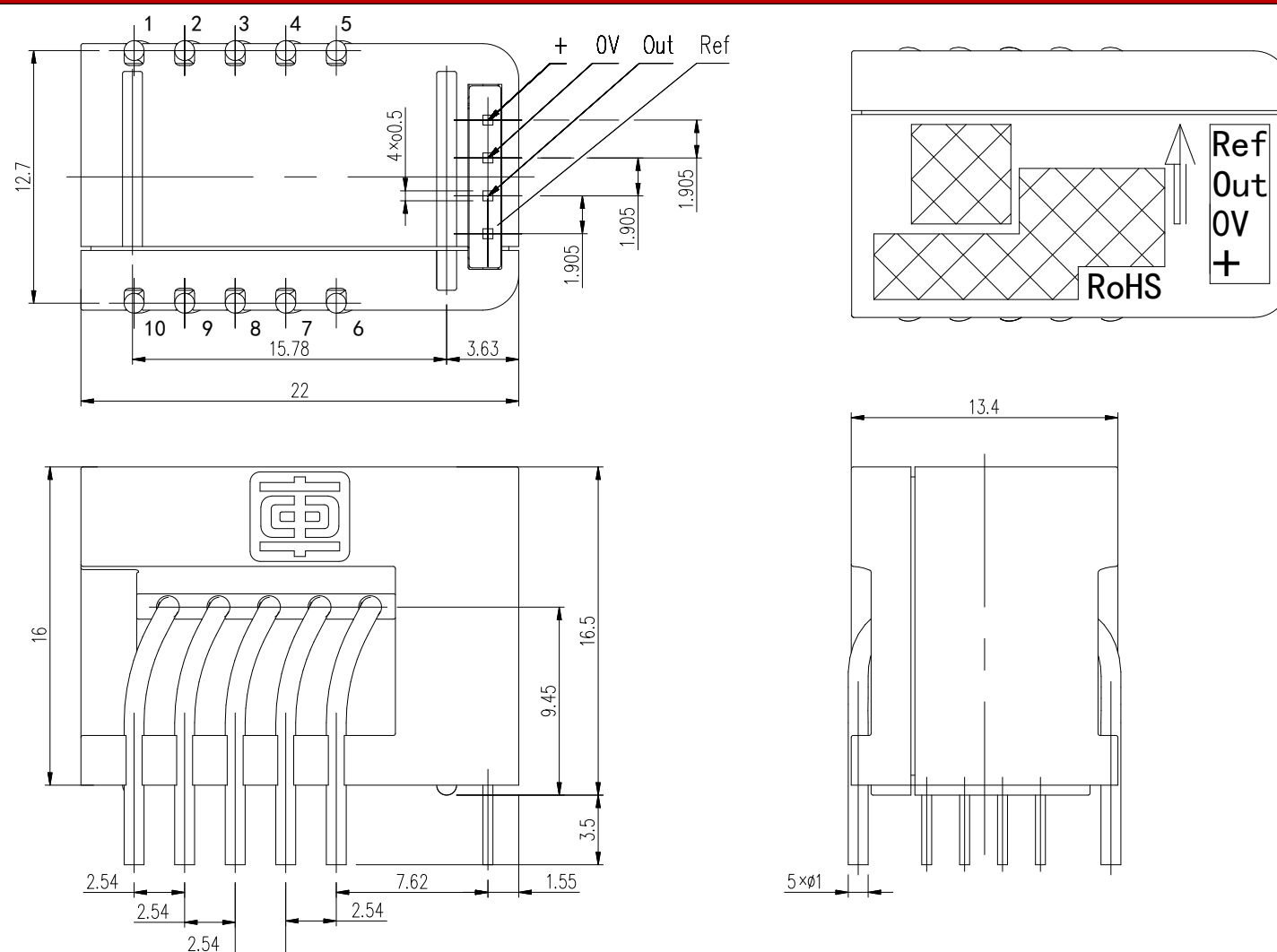
Parameter	Symbol	Unit	Specification			Conditions
			Min	Typical	Max	
Primary current, nominal range	I_{PN}	A		75		RMS current
Primary current, measuring range	I_{PM}	A	-180		180	
Number of primary turns	N_p			1,2,3,4,5		
Supply voltage	U_C	V	4.75	5	5.25	
Current consumption	I_C	mA		$15+(I_P/N_S)$	$20+(I_P/N_S)$	$N_S=966\ turns$
Reference voltage @ $I_p=0A$	V_{ref}	V	2.495	2.5	2.505	Internal reference

Parameter	Symbol	Unit	Specification			Conditions
			Min	Typical	Max	
External reference voltage	V_{ref}	V	0		4	
Output voltage range	V_{out}	V	$V_{ref} - 1.125$		$V_{ref} + 1.125$	@ I_{PM}
Output voltage @ $I_p = 0A$	V_{out}	V		V_{ref}		
Electrical offset voltage @ $I_p = 0A$	V_{OE}	mV	-0.725		0.725	$V_{out} - V_{ref}$
Electrical offset current referred to primary @ $I_p = 0A$	I_{OE}	mA	-116		116	
Temperature coefficient of V_{ref}	TCV_{ref}	ppm/K		± 5	± 50	Internal reference, ppm/k of 2.5V, -40~105°C
Temperature coefficient of V_{out} @ $I_p = 0A$	TCV_{OUT}	ppm/K			± 4	ppm/k of 2.5V, -40~105°C
Theoretical sensitivity	G_{th}	mV/A		6.2467		468.5mV@ I_{PN}
Sensitivity error	ϵ_s	% of I_{PN}	-0.7		0.7	
Temperature coefficient of G	TCG	ppm/k			± 40	-40~105°C
Linearity error	ϵ_L	% of I_{PN}	-0.1		0.1	
Magnetic offset current ($10 \times I_{PN}$) referred to primary	I_{OM}	A	-0.1		0.1	
Step response time to 90 % of I_{PN}	t_r	μs			1	$di/dt = 50 A/\mu s$
Frequency bandwidth ($\pm 1dB$) ¹⁾	BW	kHz		± 200		
Accuracy @25°C	X	% of I_{PN}	-1		1	
Accuracy @105°C	X	% of I_{PN}	-1.4		1.4	
Overall accuracy @25°C	X	% of I_{PN}	-1.2		1.2	
Overall accuracy @105°C	X	% of I_{PN}	-1.6		1.6	
Load resistance	R_L	K Ω	1	10		

Notes:

- 1) The frequency bandwidth test is for small signal.
- 2) Please contact CRRC if current transducer is applied in some extreme cases, for example: high frequency ripple, high temperature, larger operating frequency……

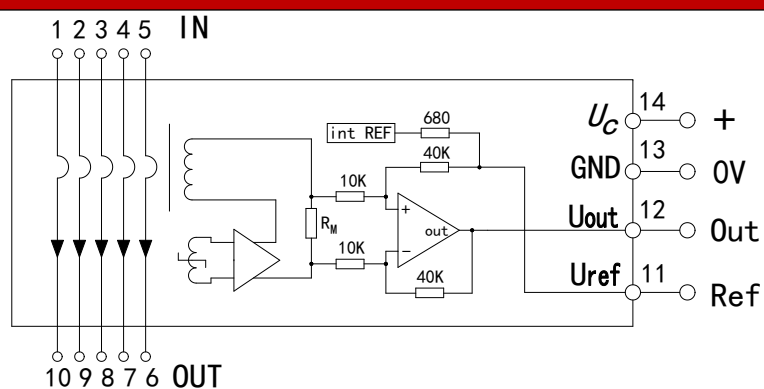
Dimensions(in mm)



Mechanical characteristics

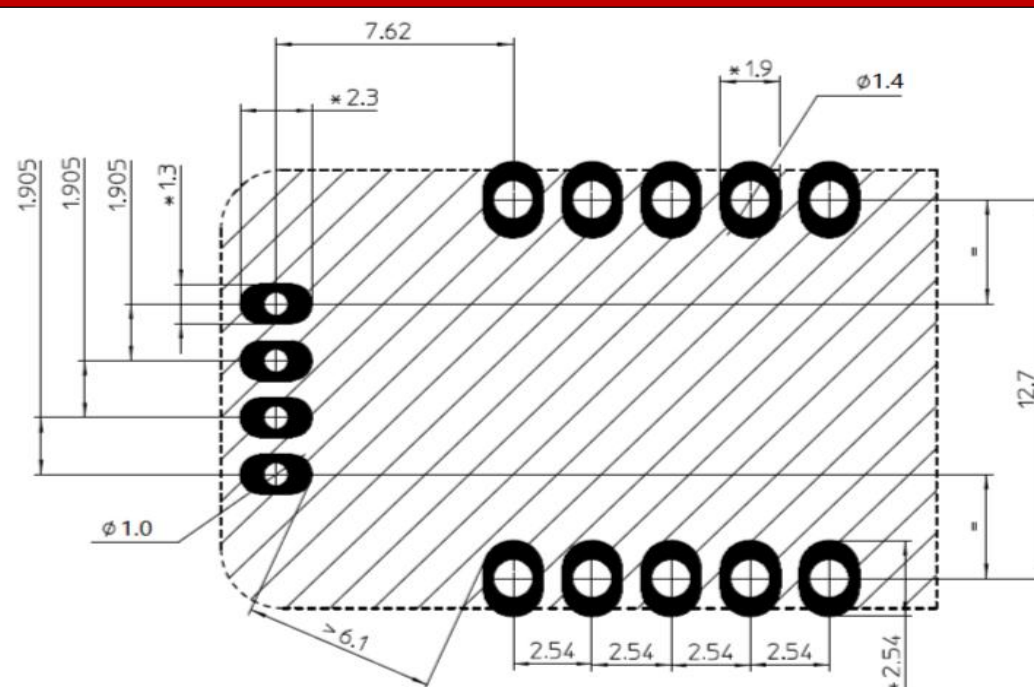
- Mass: $9g \pm 3g$
- General tolerance: $\pm 0.5mm$

Connection



PIN NO.	PIN NAME	Function
14	+U _c	Positive supply voltage
13	GND	Ground connection
12	V _{OUT}	Vout output voltage
11	V _{ref}	Internal reference output voltage.

PCB footprint according to the product (in mm)

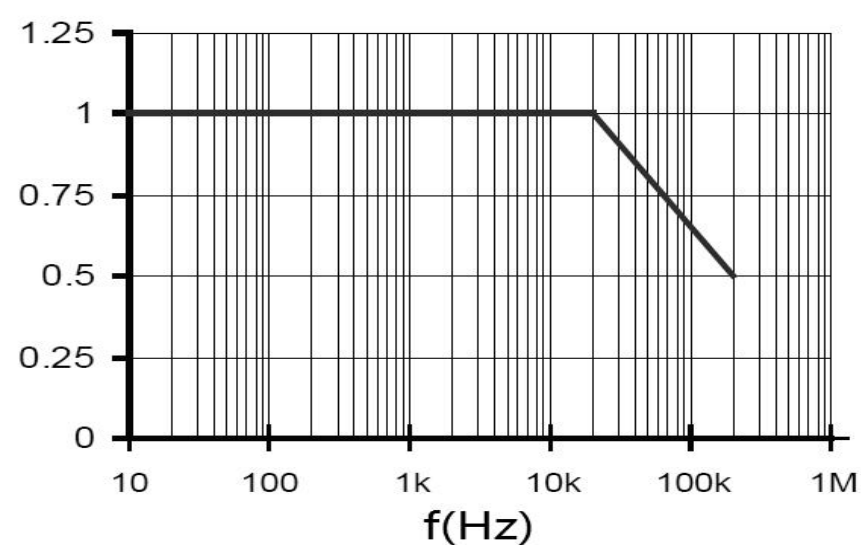


Note:

- Wave soldering profile: maximum 260°C for 10 seconds.
- Maximum PCB thickness: 2.5mm.
- Avoid primary tracks near the secondary area as it will reduce DCp/DCI.

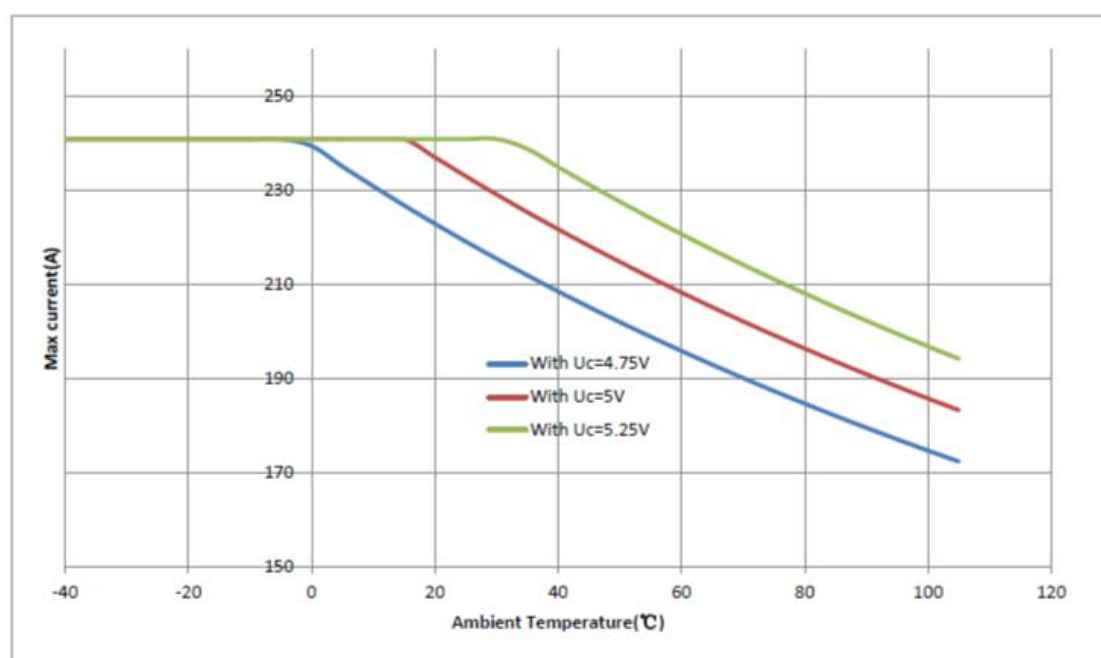
Frequency derating

Maximum RMS AC primary current / maximum DC primary current VS frequency AC Derating



Measurement range

The measurement range VS temperature



Remarks

- It is advised to use a primary conductor (busbar) that fills transducer through-hole.
- Be aware of the influence of the external field if nearby transducers are too close (relay, capacitor, choke...).

Comments:

- Items with “*” in this datasheet are recommended value for reference only. The final value must be determined by customer.
- CRRC reserves the right to carry out modifications on its transducers, in order to improve them.
- Product updates will not notified separately. The final version of the datasheet shall be confirmed through specific communication between both parties.