DTX2-1602C

Dual DC Brushed Motor Controller

DATA SHEET

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1. Overview

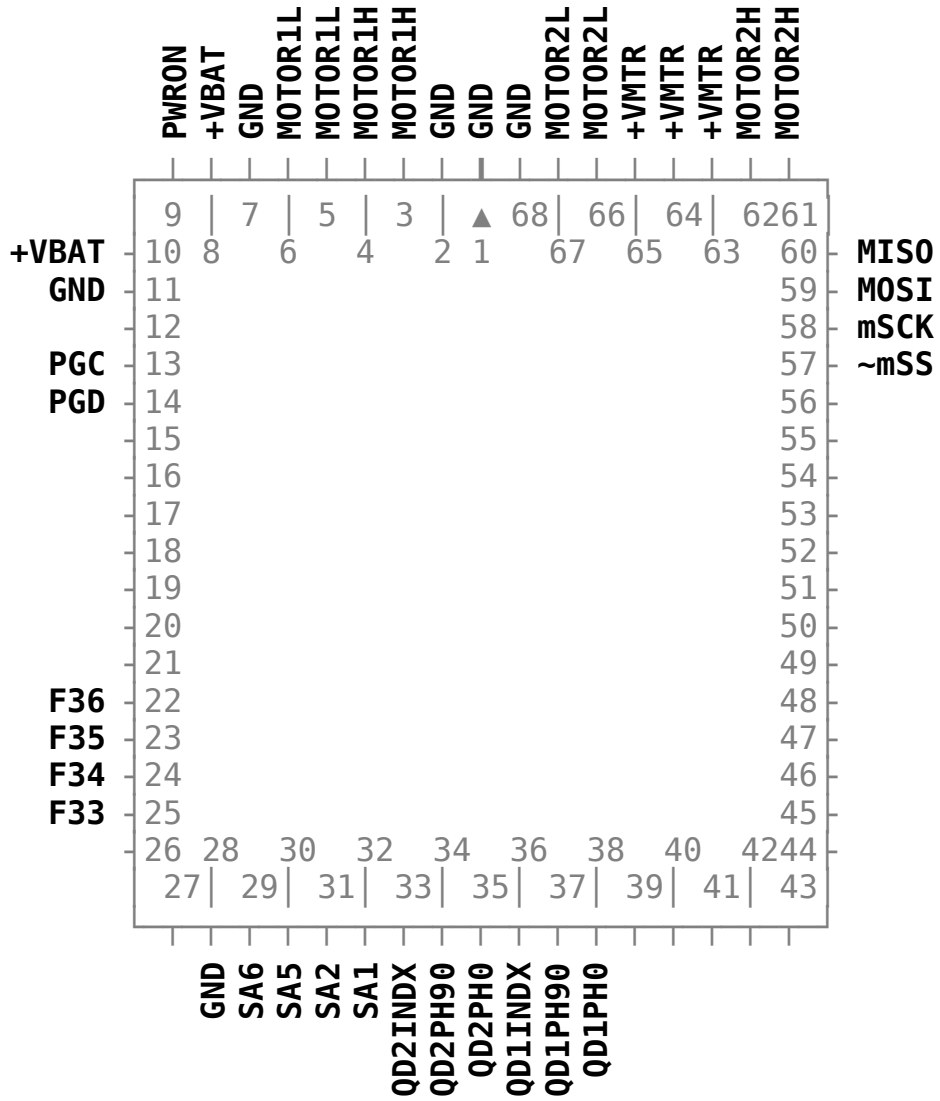
Feature Highlights

68-pin device in standard PLCC68 package; three possible ways of mounting
Wide range 4-20V DC power supply
Fully self-contained – does not need any external components to run
Easily programmable custom user firmware
Two high-current up to 5A DC motor drivers on board
Built-in self-protection
Input lines for position encoders
Optional 4-bit general purpose I/O port
RoHS compliant

Typical Applications

- Hobby and academic projects
- Robotics and various toys
- Industrial automation

2. Pinout



Pinout Summary

Pin	Name	Type	Description
1	GND	P	Ground
2	GND	P	Ground
3	MOTOR1H	PO	Motor1 high-side output
4	MOTOR1H	PO	Motor1 high-side output
5	MOTOR1L	PO	Motor1 low-side output
6	MOTOR1L	PO	Motor1 low-side output

7	GND	P	Ground
8	+VBAT	P	Positive power lead
9	PWRON	I	
10	+VBAT	P	Positive power lead
11	GND	P	Ground
12			No connection
13	PGC	I	Firmware programming clock line
14	PGD	I,O	Firmware programming data line
15			No connection
16			No connection
17			No connection
18			No connection
19			No connection
20			No connection
21			No connection
22	F36	I,O	General purpose I/O port
23	F35	I,O	General purpose I/O port
24	F34	I,O	General purpose I/O port
25	F33	I,O	General purpose I/O port
26			No connection
27			No connection
28	GND	P	Ground
29	SA6	I	mSPI address bit 6 setting *(can be left floating)*
30	SA5	I	mSPI address bit 5 setting *(can be left floating)*
31	SA2	I	mSPI address bit 2 setting *(can be left floating)*
32	SA1	I	mSPI address bit 1 setting *(can be left floating)*
33	QD2INDX	I	Quadrature decoder 2 - 'Index'
34	QD2PH90	I	Quadrature decoder 2 - 'Phase 90'
35	QD2PH0	I	Quadrature decoder 2 - 'Phase 0'
36	QD1INDX	I	Quadrature decoder 1 - 'Index'
37	QD1PH90	I	Quadrature decoder 1 - 'Phase 90'
38	QD1PH0	I	Quadrature decoder 1 - 'Phase 0'
39			No connection
40			No connection
41			No connection

42			No connection
43			No connection
44			No connection
45			No connection
46			No connection
47			No connection
48			No connection
49			No connection
50			No connection
51			No connection
52			No connection
53			No connection
54			No connection
55			No connection
56			No connection
57	~mSS	I	mSPI 'Slave Select' input; active low
58	mSCK	I	mSPI clock line
59	MOSI	I	mSPI 'Master Out, Slave In' data line
60	MISO	O	mSPI 'Master In, Slave Out' data line
61	MOTOR2H	PO	Motor2 high-side output
62	MOTOR2H	PO	Motor2 high-side output
63	+VMTR	P	Motor power supply; positive lead
64	+VMTR	P	Motor power supply; positive lead
65	+VMTR	P	Motor power supply; positive lead
66	MOTOR2L	PO	Motor2 low-side output
67	MOTOR2L	PO	Motor2 low-side output
68	GND	P	Ground

***Legend**:*
I – input with CMOS level
A – analogue input
HV – high voltage tolerant pin
O – digital output
P – power pin
5V – 5 volt tolerant pin
OD – open drain output

3. Communication

This chapter is reserved for future built-in firmware description.

4. Electrical Parameters

ABSOLUTE MAXIMUM RATINGS:

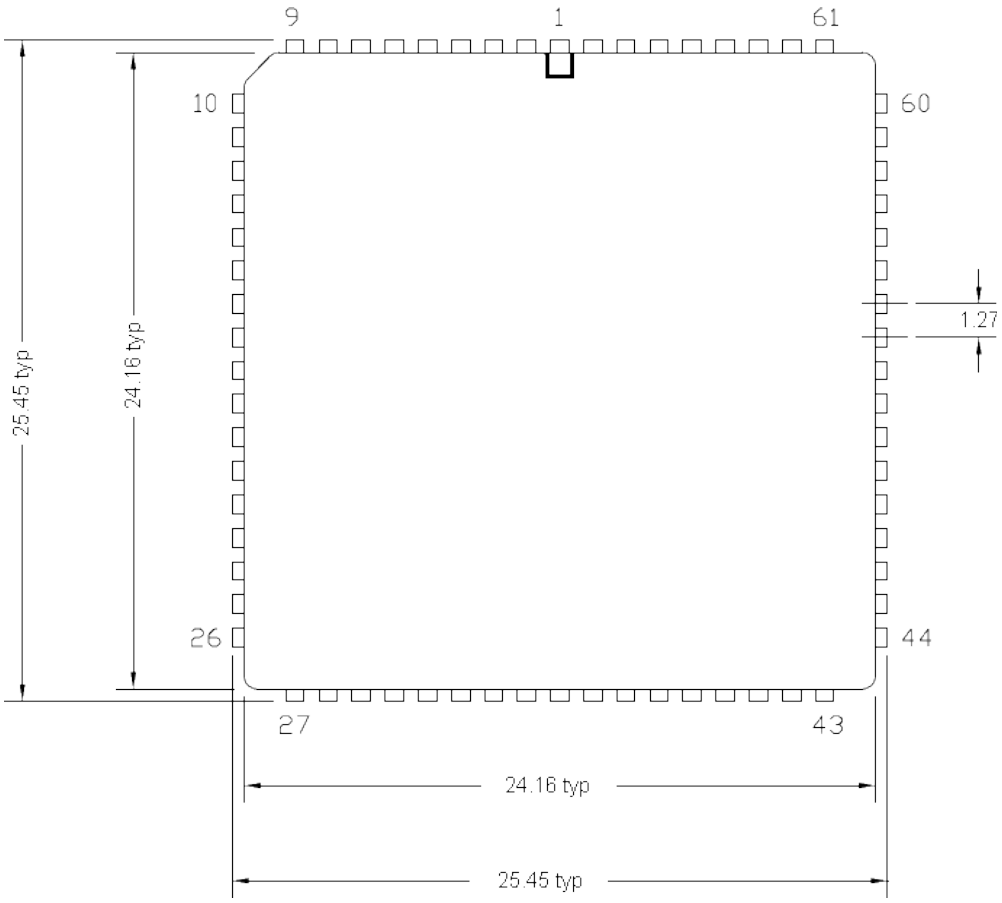
Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

parameter	min	typ	max	units
Voltage on +VBAT with respect to GND	3.5	12	20	V
Voltage on +VMTR with respect to GND	5	12	28	V
Save load on MOTORxH/MOTORxL bridge			3.5[(1)]	A
Voltage on all digital pins	-0.3	3.3	3.6	V
Parameters of all other functional pins	According to function and IC manufacturer's recommendation			
Operating free-air temperature range	-20		+85	°C
Storage temperature range	-40		+90	°C

(1) Continuous currents up to 5A per motor can be achieved by using active cooling

5. Mechanical Parameters

Note: *All dimensions are given in millimetres*



Dimitech Pty Ltd provides CAD schematic symbols and PCB footprints for the DTX series modules.
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