

DC Series Voltage Regulators

High Voltage, Low Power Voltage Regulators

Features:

- ⇒ Input Voltage to 48VDC (Max Rating 60VDC)
- ⇒ 5.0V and 3.3V Regulated Output
- ⇒ Reverse Battery Protection
- ⇒ Excellent Immunity to Transients and ESD
- ⇒ High Temperature Operation
- ⇒ Small, Low Profile Surface Mount Package

Applications:

- ⇒ Industrial Sensors and Controls
- ⇒ Automotive Sensors and Controls

Description:

The DC series voltage regulator ICs are designed to be used in harsh, noisy environments where immunity to large voltage transients and acceptance of high input voltages are required. These regulators protect the sensitive electronic components downstream, while providing a stable regulated supply voltage. They are rated for high temperature operation, up to +175C. The low profile small footprint package features an exposed die attach pad, for direct heat sinking to the circuit board.

Electrical characteristics @-40°C to +175°C, unless otherwise noted

Parameter	Min	Typ	Max	Units
Input Voltage (DC001-10)	4.5		48	Volts
Output Voltage (DC001-10)	3.0	3.3	3.6	Volts
Input Voltage (DC002-10)	6.2		48	Volts
Output Voltage (DC002-10)	4.5	5.0	5.5	Volts
Output Current			20	Milliamps
Bias Current at Zero Output Current			500	Microamps

Absolute maximum ratings *	
Parameter	Limit
Input Voltage	60V
Reverse Battery Voltage	-60V
Output Current	25mA
Junction Temperature Range, T _J	-40°C to +175°C
Storage Temperature Range	-65 °C to +200 °C

*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 “Electrical characteristics” is not implied.

Notes:

1. Power dissipation rating for TDFN6 package in free air is 320°C/Watt. Soldering the package to a PCB, including the die attach paddle, improves temperature performance substantially. The input voltage and output current are limited by thermal power dissipation at the package.
2. Due to package size, TDFN6 package contains 3-letter code to designate part type.

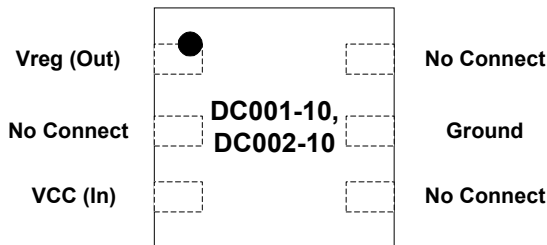
Part Numbers and Configurations:

Part Number	Regulated Output Voltage	Package	Marking
DC001-10	3.3V	TDFN6	FFB
DC002-10	5.0 V	TDFN6	FFC

Package:

Please see the package drawing section in the Appendix for dimensions of the TDFN6 package.

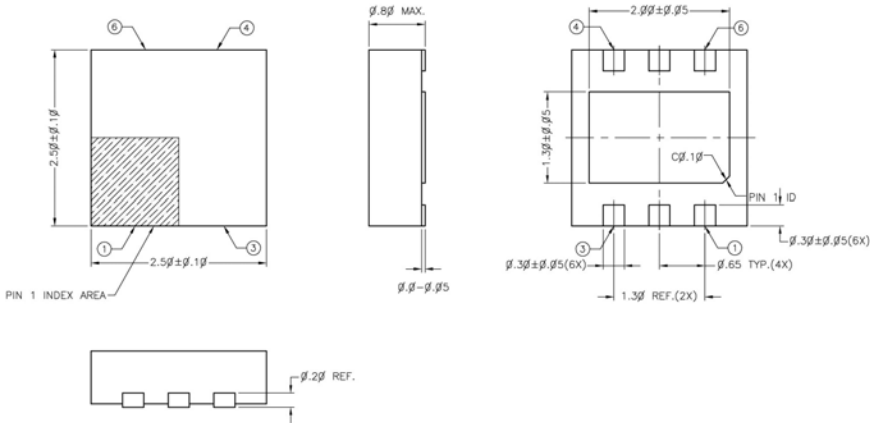
Pin Configuration:



Note: The die attach pad is exposed on the back of this package. NVE recommends that it is connected to the ground pin and the PCB to improve temperature performance of the part.

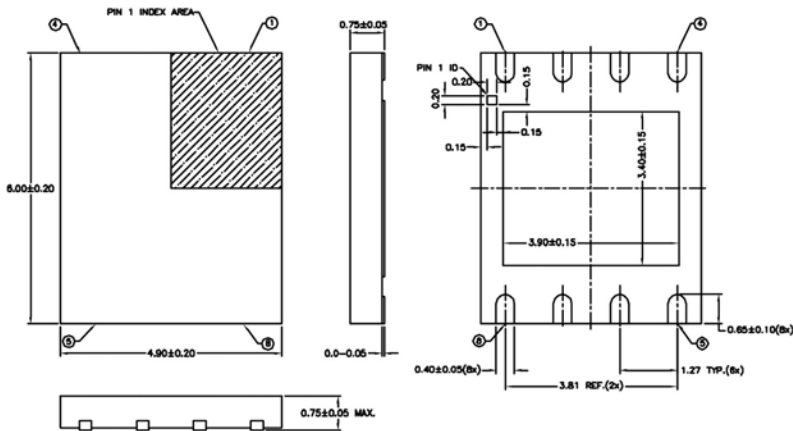
Package Drawing – TDFN6 2.5mm X 2.5mm

Note: Dimensions in mm. TDFN6 package has thermal power dissipation of 320°C/Watt in free air. Attaching the package to a circuit board improves thermal performance.



Package Drawing – TDFN SO8

Note: Dimensions in mm. TDFN SO8 Package has thermal power dissipation of 240°C/Watt in free air. Attaching the package to a circuit board improves thermal performance.



Part Numbers and Marking Codes

Some of NVE’s products are delivered in packages that are too small to be marked with the complete part number. In these cases, a 3 letter code is used to identify the part. The following table provides a cross-reference:

NVE Part Number	Code
AA004-00	CDB
AA006-00	CBC
AAH004-00	CBF
AB001-00	CBG
ABH001-00	CBH
ABL004-00	FDB
ABL005-00	FDC
ABL014-00	FDD
ABL015-00	FDF
ABL004-10	FDG
ABL005-10	FDH
ABL014-10	FDJ
ABL015-10	FDK
AD004-00	BBH
AD005-00	BBG
AD006-00	BBJ
AD020-00	BBK
AD021-00	BBB
AD022-00	BBC
AD023-00	BBD
AD024-00	BBF
AD104-00	DBH
AD105-00	DBG
AD106-00	DBJ
AD120-00	DBK
AD121-00	DBB
AD122-00	DBC
AD123-00	DBD
AD124-00	DBF
AD204-00	FBH
AD205-00	FBG
AD206-00	FBJ
AD220-00	FBK
AD221-00	FBB
AD222-00	FBC
AD223-00	FBD
AD224-00	FBF
AD304-00	GBH
AD305-00	GBG
AD306-00	GBJ
AD320-00	GBK
AD321-00	GBB
AD322-00	GBC
AD323-00	GBD
AD324-00	GBF
AD404-00	HBH
AD405-00	HBG
AD406-00	HBJ

NVE Part Number	Code
AD420-00	HBK
AD421-00	HBB
AD422-00	HBC
AD423-00	HBD
AD424-00	HBF
AD504-00	JBH
AD505-00	JBG
AD506-00	JBJ
AD520-00	JBK
AD521-00	JBB
AD522-00	JBC
AD523-00	JBD
AD524-00	JBF
AD604-00	KBH
AD605-00	KBG
AD606-00	KBJ
AD620-00	KBK
AD621-00	KBB
AD622-00	KBC
AD623-00	KBD
AD624-00	KBF
AD704-00	LBH
AD705-00	LBG
AD706-00	LBJ
AD720-00	LBK
AD721-00	LBB
AD722-00	LBC
AD723-00	LBD
AD724-00	LBF
AD081-00	BDB
AD082-00	BDC
AD083-00	BDD
AD084-00	BDF
AD821-00	MBB
AD822-00	MBC
AD823-00	MBD
AD824-00	MBF
AD921-00	NBB
AD922-00	NBC
AD923-00	NBD
AD924-00	NBF
ADH025-00	MBL
DB001-00	FFD
DC001-10	FFB
DC002-10	FFC