

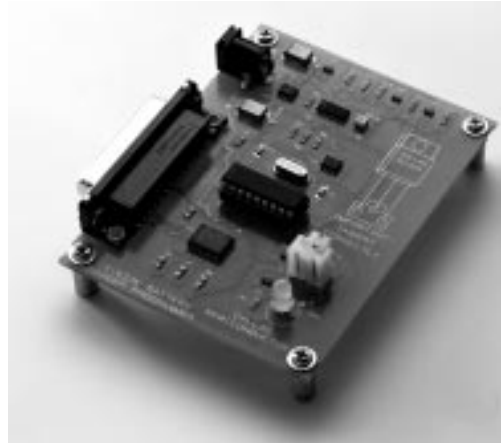
DALLAS
SEMICONDUCTOR

DS1633K
DS1633K-220
Battery Charger Programming Kit

FEATURES

- Eases development of load lines for Battery Chargers
- Programs EPROM DS1633 devices
- Operates with a PC compatible host system
- Communicates via standard 9600 baud RS232 serial port

DS1633K PROGRAMMING MODULE



INTRODUCTION

The DS1633K Battery Charger Kit provides everything you need to program the Battery Charger chip with your battery's specifications. Unlike other battery chargers, the DS1633 requires no external components, and you don't need to write sophisticated microcode. The Load Line Software included with the kit lets you draw a load line and specify other charger parameters to meet your requirements, and then program a DS1633 in a matter of minutes. You can generate as many prototypes as you need with as many different curves as you need.

KIT CONTENTS

The DS1633K kit contains the following:

1. Four unprogrammed DS1633 Battery Chargers*
2. Programming Module
3. DS1633K data sheet (this data sheet)
4. DS1633 data sheet
5. DS1633 Load Line Software floppy diskette
6. 12V AC-DC Adaptor (DS1633K – 110 VAC, DS1633K-220 – 220 VAC European version)

If you do not receive one of these items in your kit, please contact Dallas Semiconductor Customer Service at (972) 371-4969.

*We also offer DS1633s pre-programmed to work with several popular battery packs.

DEFINE OTHER CHARGING CHARACTERISTICS

Click the Programming Screen box in the upper right hand corner. It will show a variety of data (see Figure 3).

The table summarizes the information needed to configure your load line. You needn't do anything with it – or even understand it. The first two columns show the register value and the voltage value calculated for the open circuit voltage at that breakpoint (Vocx); the second two columns show the register value and the voltage value calculated for the breakpoint voltages (Vbpx); and the last two columns show the register value and Thevenin resistance calculated for each breakpoint (Rthx). The current into the battery at that breakpoint is thus (Vocx-Vbpx)/Rthx.

There are four pieces of information in the bottom left-hand corner. The first tells you whether this is a 5V or 6V

device. The remaining three are options that can be reset by clicking the appropriate box or hitting the corresponding function key. You can:

1. Turn the toggle timer mode on or off.
2. Increase or decrease the duty cycle. This determines whether current is to be applied to the battery all of the time or part of the time after the timer has expired.
3. Increase or decrease the number of hours for which the timer is set. This controls the maximum time the DS1633 can charge at a high current. The timer can be incremented or decremented in units of two hours, from two hours to 32 hours maximum.

PROGRAMMING SCREEN Figure 3

X	Vocx	X	Vbpx	X	Rthx	F1	PROGRAM	REGISTERS	REGISTERS	REGISTERS
97	4.508	0	0.000	87	58.360	<input type="checkbox"/>	F1	PROGRAM	REGISTERS	REGISTERS
97	4.408	5	0.185	88	55.442	<input type="checkbox"/>	F2	READ	REGISTERS	REGISTERS
97	4.308	10	0.370	88	52.670	<input type="checkbox"/>	F3	SAVE	REGISTERS	REGISTERS
97	4.208	14	0.518	90	50.037	<input type="checkbox"/>				
97	4.108	18	0.666	91	47.555	<input type="checkbox"/>				
97	4.008	22	0.814	91	45.158	<input type="checkbox"/>				
97	3.908	26	0.962	92	42.900	<input type="checkbox"/>				
97	3.808	30	1.110	93	40.753	<input type="checkbox"/>				
97	3.708	34	1.258	94	40.753	<input type="checkbox"/>				
97	3.608	38	1.406	94	38.717	<input type="checkbox"/>				
97	3.508	41	1.517	95	36.753	<input type="checkbox"/>				
97	3.408	44	1.628	95	34.942	<input type="checkbox"/>				
97	3.308	47	1.739	96	33.192	<input type="checkbox"/>				
97	3.208	47	1.850	97	31.503	<input type="checkbox"/>				
97	3.108	50	1.961	98	29.873	<input type="checkbox"/>				
97	3.008	53	2.072	99	28.303	<input type="checkbox"/>				
97	2.908	56	2.183	100	26.793	<input type="checkbox"/>				
97	2.808	59	2.294	101	25.341	<input type="checkbox"/>				
97	2.708	62	2.405	102	23.948	<input type="checkbox"/>				
97	2.608	65	2.516	103	22.613	<input type="checkbox"/>				
97	2.508	68	2.627	104	21.335	<input type="checkbox"/>				
97	2.408	70	2.738	105	20.113	<input type="checkbox"/>				
97	2.308	72	2.849	106	18.947	<input type="checkbox"/>				
97	2.208	74	2.960	107	17.837	<input type="checkbox"/>				
97	2.108	76	3.071	108	16.781	<input type="checkbox"/>				
97	2.008	78	3.182	109	15.779	<input type="checkbox"/>				
97	1.908	80	3.293	110	14.831	<input type="checkbox"/>				
97	1.808	82	3.404	111	13.937	<input type="checkbox"/>				
97	1.708	84	3.515	112	13.097	<input type="checkbox"/>				
97	1.608	86	3.626	113	12.311	<input type="checkbox"/>				
97	1.508	88	3.737	114	11.579	<input type="checkbox"/>				
97	1.408	90	3.848	115	10.899	<input type="checkbox"/>				
97	1.308	91	3.959		10.270	<input type="checkbox"/>				

MODE SELECT REG/PF BITS	F5 TOGGLE TIMER MODE	<input type="checkbox"/>
FIVE VOLT OPERATION	F6 INCREASE DUTY CYCLE	<input type="checkbox"/>
DUTY CYCLE : 100.000	F7 DECREASE DUTY CYCLE	<input type="checkbox"/>
HOURS ON TIMER : 2	F8 INCREASE # OF HOURS ON TIMER	<input type="checkbox"/>
TIMER MODE : OFF	F9 DECREASE # OF HOURS ON TIMER	<input type="checkbox"/>
	F10 READ CONTENTS OF DS1633	<input type="checkbox"/>

SAVING OR RETRIEVING A LOAD LINE CURVE

You may save your load line and attributes to a file. This allows you to program multiple DS1633s without having to redraw the load line in subsequent sessions.

Click the Save Registers box in the upper right corner, or press the function key indicated. The screen will prompt you to enter a file name.

Click the Read Registers box (or press the function key) if you want to retrieve the specifications you saved from a previous session and program more DS1633s.

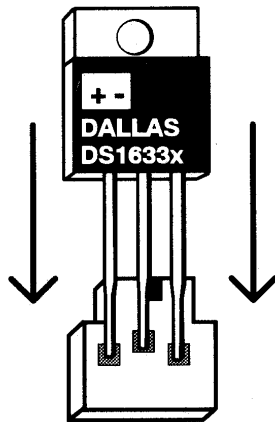
PROGRAMMING A DS1633

NOTE: Before you start, verify that the Programming Module is set up correctly. If it is not, the software will hang and you'll have to reboot your PC.

Insert a DS1633 into the socket (see Figure 4). Click the Program Registers box or press the function key indicated. Within 15 seconds, you will hear a beep and a message should appear on the programming screen saying "PROGRAMMING OPERATION SUCCESSFUL". And that's it. The DS1633 is completely programmed.

INSERTING A DS1633 INTO THE SOCKET

Figure 4



At this point, you can program more devices, modify the programming from this screen, or return to the previous load line screen to make a new graph.

NOTE: If the programming was not successful or the setup is incorrect, you will get the message "REGISTER PROGRAMMING FAILED, OK". Check your setup. If it is correct, it is possible that the DS1633 has been previously programmed. If you can't find the problem, contact the factory.

Once a DS1633 has been programmed, it cannot be re-programmed. You can read the contents of a previously programmed DS1633 by clicking in the 'Read Contents of DS1633' box. This may help you determine if a part which fails to program has already been programmed, or may allow you to use a master part to make copies from in case you didn't save the register values in a file on disk.

RETURNING TO THE LOAD LINE SCREEN

To return to the previous screen, click Exit. If you did not save the previous load line before returning to the load line screen, you can still return to the programming screen and save the load line in a file. You can also draw and erase a graph on the load line screen without erasing the previous numbers in the programming screen.

However, once you click the Compute $k(V_{bp})$ box, all previous values in the programming screen will be replaced with the new values from the current graph.

To exit the program, click Exit from the load line screen.