






Part #:	900V SiC MOSFETs	   
Description:	10x higher dielectric breakdown field strength, 2x higher electron saturation velocity, 3x higher energy bandgap, and 3x higher thermal conductivity	 Download Datasheet

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Author

Topic: Tek TDS3000 series and Dallas NVRAM (Read 7745 times)

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MarkL

Supporter



Posts: 1658

Country:



Tek TDS3000 series and Dallas NVRAM

« on: September 25, 2014, 04:10:03 pm »

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I was performing a minor repair on a TDS3054 (not B or C version), and I noticed a "Dallas DS1742W-150 Timekeeping RAM" soldered onto the main board. The date code is 1999, and the Dallas datasheet claims a minimum of 10 year life expectancy for the battery.

Does anyone know if the cal data or other critical information is stored there? Is there any known backup procedure besides unsoldering it and reading it out on a programmer? Perhaps via the GPIB?

Has anyone seen any TDS3000 NVRAM go bad?

Given the actual lifetime reported on other Dallas NVRAM parts in other scopes, I probably still have many years left before I have to deal with it, assuming I keep the scope that long.

And a side note... The repair was to replace the CCFL tubes on the display which was getting very dim. There are two CCFL tubes and they slide out as modules. It's a trivial repair, although getting to the display itself requires a bit of disassembly. Display is part #NEC NL6448AC20-06, CCFL modules are 65LHS-3L. You can also get bare CCFL tubes (2.6mm x 153mm) and solder them in the modules yourself for much less. FYI.

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voltsandjolts

Supporter



Posts: 906

Country:



Re: Tek TDS3000 series and Dallas NVRAM

« Reply #1 on: September 26, 2014, 09:18:20 pm »

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I replaced the NVRAM in my TDS3034 as a precaution - I didn't know if there was any critical info in there.

Turns out there isn't, so its safe to let the NVRAM battery die before replacing it.

The only difference I could see by fitting a new blank NVRAM was the "number of powerups" in scope

diagnostics was reset to zero.
I think the NVRAM just stores scope setups, timebase, volts per division etc.

Thanks for the display and CCFL PNs, hopefully I won't need them!

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David Hess

Super Contributor



Posts: 11469

Country:

DavidH



Re: Tek TDS3000 series and Dallas NVRAM

« **Reply #2 on:** September 26, 2014, 10:19:18 pm »

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Wow, that is good to know.

Earlier Tektronix oscilloscopes stored the calibration data in the NVRAM leading to a difficult or costly problem if the contents were lost.

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HighVoltage

Super Contributor



Posts: 4463

Country:



Re: Tek TDS3000 series and Dallas NVRAM

« **Reply #3 on:** September 26, 2014, 10:25:19 pm »

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Quote from: voltsandjolts on September 26, 2014, 09:18:20 pm

I replaced the NVRAM in my TDS3034 as a precaution - I didn't know if there was any critical info in there. Turns out there isn't, so its safe to let the NVRAM battery die before replacing it. The only difference I could see by fitting a new blank NVRAM was the "number of powerups" in scope diagnostics was reset to zero. I think the NVRAM just stores scope setups, timebase, volts per division etc.

Thanks for the display and CCFL PNs, hopefully I won't need them!

I also have an older TDS3034 and may be I should replace the NVRAM. Did you replace it with the same "Dallas DS1742W-150 Timekeeping RAM" or are there alternatives?

Thanks for this great information.

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There are 3 kinds of people in this world, those who can count and those who can not.

David Hess

Super Contributor



Posts: 11469

Country:

DavidH



Re: Tek TDS3000 series and Dallas NVRAM

« **Reply #4 on:** September 26, 2014, 10:56:45 pm »

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Quote from: HighVoltage on September 26, 2014, 10:25:19 pm

I also have an older TDS3034 and may be I should replace the NVRAM. Did you replace it with the same "Dallas DS1742W-150 Timekeeping RAM" or are there alternatives?

Thanks for this great information.

You can use a faster one to replace a slower one. I see plenty available at Mouser and Digi-Key although they cost more than \$20 each.

I am not aware of any third party equivalent replacements. I know this issue has come up for older Dallas Timekeeping RAMs which they no longer produce. In those cases, the Timekeeping RAMs were replaced with standard NVRAMs and the oscilloscope still worked but without the time and date functions.

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MarkL

Supporter



Posts: 1658

Country:



Re: Tek TDS3000 series and Dallas NVRAM

« **Reply #5 on:** September 27, 2014, 01:57:42 am »

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Thanks for the info on the NVRAM, voltsandjolts!

It's good to know design mistakes of the past don't always repeat themselves.

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voltsandjolts

Supporter



Posts: 906

Country:



Re: Tek TDS3000 series and Dallas NVRAM

« **Reply #6 on:** September 27, 2014, 08:40:30 am »

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@HighVoltage
"Did you replace it with the same "Dallas DS1742W-150 Timekeeping RAM" or are there alternatives?"

Yes, I used that Dallas part. Not cheap.

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prot_brot

Contributor

Posts: 13

Country:



Re: Tek TDS3000 series and Dallas NVRAM

« Reply #7 on: February 10, 2015, 04:10:46 pm »

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Will DS1642 work? it has the same 2k x 8 ram and pinout as the DS1742 at half the price

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Jwalling

Supporter



Posts: 1361

Country:

This is work?



Re: Tek TDS3000 series and Dallas NVRAM

« Reply #8 on: August 09, 2016, 05:06:35 pm »

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Quote from: MarkL on September 25, 2014, 04:10:03 pm

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Has anyone seen any TDS3000 NVRAM go bad?

Given the actual lifetime reported on other Dallas NVRAM parts in other scopes, I probably still have many years left before I have to deal with it, assuming I keep the scope that long.

Had an opportunity to read out the contents of the Dallas chip in a TDS3014B
Is it possible that there is a back-door into these? I'm no hacker, completely clueless even.

I've attached the binary as well.

EDIT: Typo. Always a friggin' typo!

Jay

```

00000650 00 00 03 e6 00 00 02 31 00 00 02 eb 00 00 03 73 ...æ...1...ë...s
00000660 00 00 02 2e 00 00 02 e5 00 00 03 1a 00 00 02 30 .....å.....0
00000670 00 68 12 83 00 00 00 08 00 00 00 00 00 00 01 .h.f.....
00000680 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
00000690 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
000006a0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
000006b0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 .....
000006c0 00 00 00 03 00 00 00 02 00 00 00 01 00 00 27 10 .....!.
000006d0 00 00 00 01 00 00 00 00 00 00 00 05 00 00 00 00 .....
000006e0 00 05 13 36 01 ff 00 00 02 00 00 00 00 00 00 00 ...6.y.....
000006f0 08 00 11 17 d3 71 00 00 00 00 00 03 00 00 00 29 ...óq.....)
00000700 71 75 28 30 2c 30 29 6e 61 74 61 73 68 61 3a 2f qu(0,0)natasha:/
00000710 6c 6f 67 69 6e 2f 65 74 61 73 77 2f 70 61 63 6d login/etasw/pacm
00000720 61 6e 2f 64 65 76 65 6c 53 57 2f 76 78 57 6f 72 an/develSW/vxWor
00000730 6b 73 2e 67 39 65 2e 73 74 20 65 3d 3a 66 66 66 ks.g9e.st e=fff
00000740 66 66 66 30 30 20 68 3d 31 32 38 2e 31 38 31 2e fff00 h=128.181.
00000750 31 31 37 2e 35 35 20 75 3d 64 73 61 69 6c 6f 72 117.55 u=dsailor
00000760 20 73 3d 73 74 61 72 74 75 70 2e 67 39 65 00 73 s=startup.g9e.s
00000770 74 61 72 74 75 70 2e 67 39 65 00 67 39 65 00 73 tartup.g9e.g9e.s
00000780 3d 73 74 61 72 74 75 70 2e 67 39 65 00 73 74 61 =startup.g9e.sta
00000790 72 74 75 70 2e 67 39 65 00 6b 73 2e 67 39 65 2e rtup.g9e.ks.g9e.
000007a0 73 74 00 00 00 00 00 00 00 00 00 00 00 00 00 00 st.....
000007b0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
000007c0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
000007d0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
000007e0 00 01 04 a5 00 00 5b 39 00 01 04 a5 00 00 00 00 ...¥..[9...¥....
000007f0 00 01 00 01 00 00 00 00 20 17 57 06 02 09 08 16 ..... .W.....

```

3014b.jpg (153.78 kB, 591x485 - viewed 886 times.)

TDS3014B Dallas DS1742.zip (0.38 kB - downloaded 420 times.)

« Last Edit: August 09, 2016, 05:08:32 pm by Jwalling »

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Jay

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