

The S-801 Series is a series of high-precision voltage detectors with a built-in delay time generator of fixed time developed using CMOS process. The detection voltage is fixed internally, with an accuracy of $\pm 2.0\%$. Internal oscillator and counter timer can delay the release signal without external parts. Three delay times 50 ms, 100 ms, and 200 ms are available. Two output forms, Nch open-drain and CMOS output, are available.

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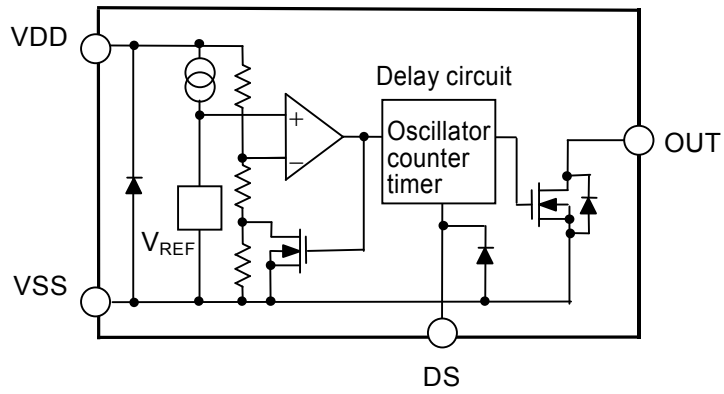
- Ultra-low current consumption 1.3 μA typ. (at $V_{\text{DD}}=3.5\text{ V}$)
- High-precision detection voltage $\pm 2.0\%$
- Operating voltage range 0.95 V to 10.0 V
- Hysteresis characteristics 60 mV typ.
- Detection voltage 2.2 V to 6.0 V (0.1 V step)
- Three delay times
A type 50 ms typ.
B type 100 ms typ.
C type 200 ms typ.
- ON/OFF switching function of delay time (DS pin)
- Output forms
Nch open-drain output (Active Low)
CMOS output (Active Low)
- Lead-free, Sn 100%, halogen-free
Refer to “■ ” for details.

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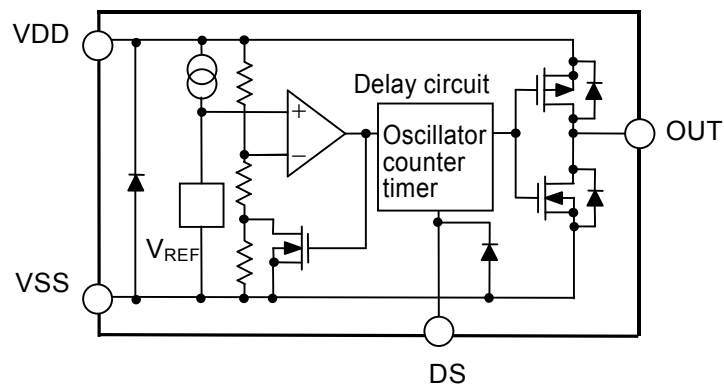
- Power monitor for portable equipment such as notebook computers, digital still cameras, PDA, and cellular phones.
- Constant voltage power monitor for cameras, video equipment and communication devices.
- Power monitor for microcomputers and reset for CPUs.

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- SOT-23-5
- SNT-4A



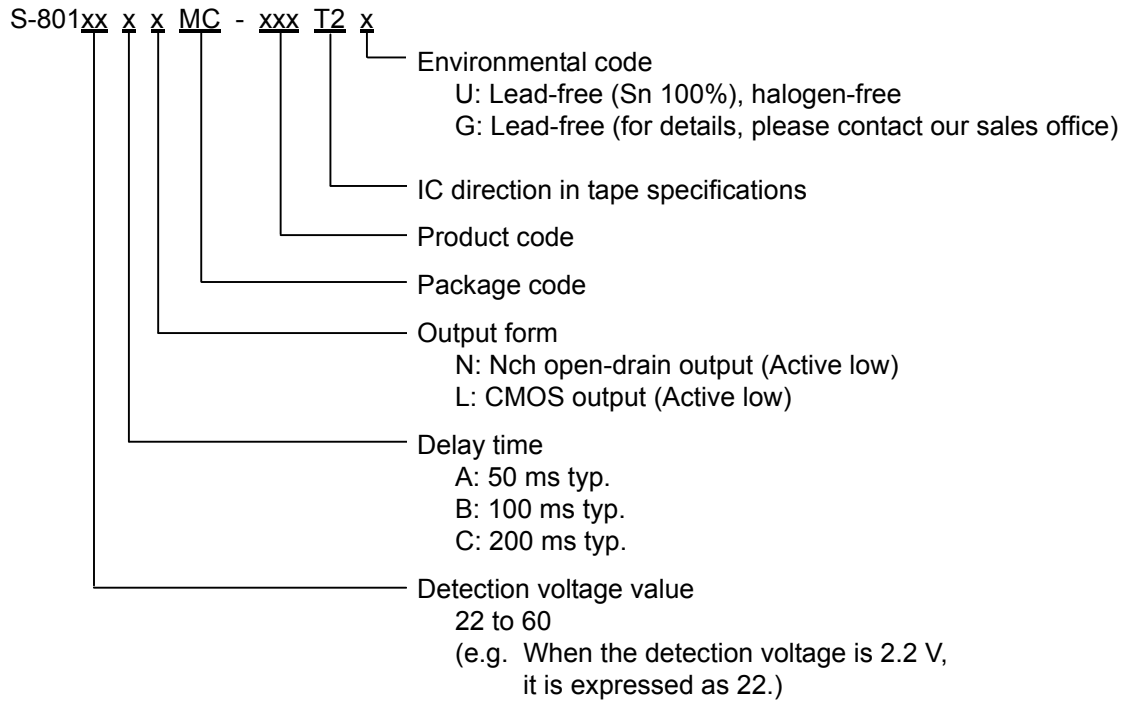
Parasitic diode



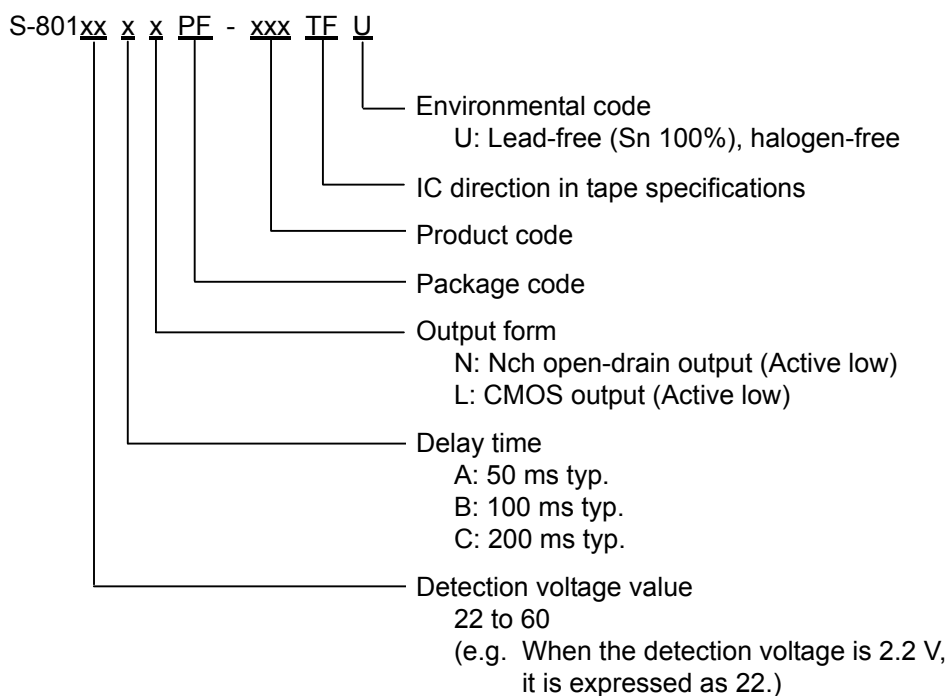
Parasitic diode



The detection voltage, delay time, output form and packages for S-801 Series can be selected at the user's request. Refer to the “ ” for the construction of the product name, “ ” regarding the package drawings and “ ” for the full product names.



- . Refer to the tape drawing.
- . Refer to in “ ”.



. Refer to the tape drawing.

. Refer to in “ ”.

Package name	Drawing code			
	Package	Tape	Reel	Land
SOT-23-5	MP005-A-P-SD	MP005-A-C-SD	MP005-A-R-SD	—
SNT-4A	PF004-A-P-SD	PF004-A-C-SD	PF004-A-R-SD	PF004-A-L-SD

Detection voltage range	Delay time	Nch open-drain output products	CMOS output products
2.2 V \pm 2.0%	50 ms typ.	S-80122ANMC-JCHT2x	S-80122ALMC-JAHT2x
	100 ms typ.	S-80122BNMC-JGHT2x	S-80122BLMC-JEHT2x
	200 ms typ.	S-80122CNMC-JKHT2x	S-80122CLMC-JIHT2x
2.3 V \pm 2.0%	50 ms typ.	S-80123ANMC-JCIT2x	S-80123ALMC-JAIT2x
	100 ms typ.	S-80123BNMC-JGIT2x	S-80123BLMC-JEIT2x
	200 ms typ.	S-80123CNMC-JKIT2x	S-80123CLMC-JIIT2x
2.4 V \pm 2.0%	50 ms typ.	S-80124ANMC-JCJT2x	S-80124ALMC-JAJT2x
	100 ms typ.	S-80124BNMC-JGJT2x	S-80124BLMC-JEJT2x
	200 ms typ.	S-80124CNMC-JKJT2x	S-80124CLMC-JIJT2x
2.5 V \pm 2.0%	50 ms typ.	S-80125ANMC-JCKT2x	S-80125ALMC-JAKT2x
	100 ms typ.	S-80125BNMC-JGKT2x	S-80125BLMC-JEKT2x
	200 ms typ.	S-80125CNMC-JKKT2x	S-80125CLMC-JIKT2x
2.6 V \pm 2.0%	50 ms typ.	S-80126ANMC-JCLT2x	S-80126ALMC-JALT2x
	100 ms typ.	S-80126BNMC-JGLT2x	S-80126BLMC-JELT2x
	200 ms typ.	S-80126CNMC-JKLT2x	S-80126CLMC-JILT2x
2.7 V \pm 2.0%	50 ms typ.	S-80127ANMC-JCMT2x	S-80127ALMC-JAMT2x
	100 ms typ.	S-80127BNMC-JGMT2x	S-80127BLMC-JEMT2x
	200 ms typ.	S-80127CNMC-JKMT2x	S-80127CLMC-JIMT2x
2.8 V \pm 2.0%	50 ms typ.	S-80128ANMC-JCNT2x	S-80128ALMC-JANT2x
	100 ms typ.	S-80128BNMC-JGNT2x	S-80128BLMC-JENT2x
	200 ms typ.	S-80128CNMC-JKNT2x	S-80128CLMC-JINT2x
2.9 V \pm 2.0%	50 ms typ.	S-80129ANMC-JCOT2x	S-80129ALMC-JAOT2x
	100 ms typ.	S-80129BNMC-JGOT2x	S-80129BLMC-JEOT2x
	200 ms typ.	S-80129CNMC-JKOT2x	S-80129CLMC-JIOT2x
3.0 V \pm 2.0%	50 ms typ.	S-80130ANMC-JCPT2x	S-80130ALMC-JAPT2x
	100 ms typ.	S-80130BNMC-JGPT2x	S-80130BLMC-JEPT2x
	200 ms typ.	S-80130CNMC-JKPT2x	S-80130CLMC-JIPT2x
3.1 V \pm 2.0%	50 ms typ.	S-80131ANMC-JCQT2x	S-80131ALMC-JAQT2x
	100 ms typ.	S-80131BNMC-JGQT2x	S-80131BLMC-JEQT2x
	200 ms typ.	S-80131CNMC-JKQT2x	S-80131CLMC-JIQT2x
3.2 V \pm 2.0%	50 ms typ.	S-80132ANMC-JCRT2x	S-80132ALMC-JART2x
	100 ms typ.	S-80132BNMC-JGRT2x	S-80132BLMC-JERT2x
	200 ms typ.	S-80132CNMC-JKRT2x	S-80132CLMC-JIRT2x
3.3 V \pm 2.0%	50 ms typ.	S-80133ANMC-JCST2x	S-80133ALMC-JAST2x
	100 ms typ.	S-80133BNMC-JGST2x	S-80133BLMC-JEST2x
	200 ms typ.	S-80133CNMC-JKST2x	S-80133CLMC-JIST2x
3.4 V \pm 2.0%	50 ms typ.	S-80134ANMC-JCTT2x	S-80134ALMC-JATT2x
	100 ms typ.	S-80134BNMC-JGTT2x	S-80134BLMC-JETT2x
	200 ms typ.	S-80134CNMC-JKTT2x	S-80134CLMC-JITT2x

Detection voltage range	Delay time	Nch open-drain output products	CMOS output products
3.5 V \pm 2.0%	50 ms typ.	S-80135ANMC-JCUT2x	S-80135ALMC-JAUT2x
	100 ms typ.	S-80135BNMC-JGUT2x	S-80135BLMC-JEUT2x
	200 ms typ.	S-80135CNMC-JKUT2x	S-80135CLMC-JIUT2x
3.6 V \pm 2.0%	50 ms typ.	S-80136ANMC-JCVT2x	S-80136ALMC-JAVT2x
	100 ms typ.	S-80136BNMC-JGVT2x	S-80136BLMC-JEVT2x
	200 ms typ.	S-80136CNMC-JKVT2x	S-80136CLMC-JIVT2x
3.7 V \pm 2.0%	50 ms typ.	S-80137ANMC-JCWT2x	S-80137ALMC-JAWT2x
	100 ms typ.	S-80137BNMC-JGWT2x	S-80137BLMC-JEWT2x
	200 ms typ.	S-80137CNMC-JKWT2x	S-80137CLMC-JIWT2x
3.8 V \pm 2.0%	50 ms typ.	S-80138ANMC-JCXT2x	S-80138ALMC-JAXT2x
	100 ms typ.	S-80138BNMC-JGXT2x	S-80138BLMC-JEXT2x
	200 ms typ.	S-80138CNMC-JKXT2x	S-80138CLMC-JIXT2x
3.9 V \pm 2.0%	50 ms typ.	S-80139ANMC-JCYT2x	S-80139ALMC-JAYT2x
	100 ms typ.	S-80139BNMC-JGYT2x	S-80139BLMC-JEYT2x
	200 ms typ.	S-80139CNMC-JKYT2x	S-80139CLMC-JIYT2x
4.0 V \pm 2.0%	50 ms typ.	S-80140ANMC-JCZT2x	S-80140ALMC-JAZT2x
	100 ms typ.	S-80140BNMC-JGZT2x	S-80140BLMC-JEZT2x
	200 ms typ.	S-80140CNMC-JKZT2x	S-80140CLMC-JIZT2x
4.1 V \pm 2.0%	50 ms typ.	S-80141ANMC-JC2T2x	S-80141ALMC-JA2T2x
	100 ms typ.	S-80141BNMC-JG2T2x	S-80141BLMC-JE2T2x
	200 ms typ.	S-80141CNMC-JK2T2x	S-80141CLMC-JI2T2x
4.2 V \pm 2.0%	50 ms typ.	S-80142ANMC-JC3T2x	S-80142ALMC-JA3T2x
	100 ms typ.	S-80142BNMC-JG3T2x	S-80142BLMC-JE3T2x
	200 ms typ.	S-80142CNMC-JK3T2x	S-80142CLMC-JI3T2x
4.3 V \pm 2.0%	50 ms typ.	S-80143ANMC-JC4T2x	S-80143ALMC-JA4T2x
	100 ms typ.	S-80143BNMC-JG4T2x	S-80143BLMC-JE4T2x
	200 ms typ.	S-80143CNMC-JK4T2x	S-80143CLMC-JI4T2x
4.4 V \pm 2.0%	50 ms typ.	S-80144ANMC-JC5T2x	S-80144ALMC-JA5T2x
	100 ms typ.	S-80144BNMC-JG5T2x	S-80144BLMC-JE5T2x
	200 ms typ.	S-80144CNMC-JK5T2x	S-80144CLMC-JI5T2x
4.5 V \pm 2.0%	50 ms typ.	S-80145ANMC-JC6T2x	S-80145ALMC-JA6T2x
	100 ms typ.	S-80145BNMC-JG6T2x	S-80145BLMC-JE6T2x
	200 ms typ.	S-80145CNMC-JK6T2x	S-80145CLMC-JI6T2x
4.6 V \pm 2.0%	50 ms typ.	S-80146ANMC-JC7T2x	S-80146ALMC-JA7T2x
	100 ms typ.	S-80146BNMC-JG7T2x	S-80146BLMC-JE7T2x
	200 ms typ.	S-80146CNMC-JK7T2x	S-80146CLMC-JI7T2x
4.7 V \pm 2.0%	50 ms typ.	S-80147ANMC-JC8T2x	S-80147ALMC-JA8T2x
	100 ms typ.	S-80147BNMC-JG8T2x	S-80147BLMC-JE8T2x
	200 ms typ.	S-80147CNMC-JK8T2x	S-80147CLMC-JI8T2x
4.8 V \pm 2.0%	50 ms typ.	S-80148ANMC-JC9T2x	S-80148ALMC-JA9T2x
	100 ms typ.	S-80148BNMC-JG9T2x	S-80148BLMC-JE9T2x
	200 ms typ.	S-80148CNMC-JK9T2x	S-80148CLMC-JI9T2x
4.9 V \pm 2.0%	50 ms typ.	S-80149ANMC-JDAT2x	S-80149ALMC-JBAT2x
	100 ms typ.	S-80149BNMC-JHAT2x	S-80149BLMC-JFAT2x
	200 ms typ.	S-80149CNMC-JLAT2x	S-80149CLMC-JJAT2x

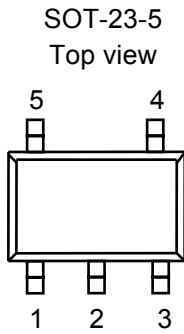
Detection voltage range	Delay time	Nch open-drain output products	CMOS output products
5.0 V \pm 2.0%	50 ms typ.	S-80150ANMC-JDBT2x	S-80150ALMC-JBBT2x
	100 ms typ.	S-80150BNMC-JHBT2x	S-80150BLMC-JFBT2x
	200 ms typ.	S-80150CNMC-JLBT2x	S-80150CLMC-JJBT2x
5.1 V \pm 2.0%	50 ms typ.	S-80151ANMC-JDCT2x	S-80151ALMC-JBCT2x
	100 ms typ.	S-80151BNMC-JHCT2x	S-80151BLMC-JFCT2x
	200 ms typ.	S-80151CNMC-JLCT2x	S-80151CLMC-JJCT2x
5.2 V \pm 2.0%	50 ms typ.	S-80152ANMC-JDDT2x	S-80152ALMC-JBDT2x
	100 ms typ.	S-80152BNMC-JHDT2x	S-80152BLMC-JFDT2x
	200 ms typ.	S-80152CNMC-JLDT2x	S-80152CLMC-JJDT2x
5.3 V \pm 2.0%	50 ms typ.	S-80153ANMC-JDET2x	S-80153ALMC-JBET2x
	100 ms typ.	S-80153BNMC-JHET2x	S-80153BLMC-JFET2x
	200 ms typ.	S-80153CNMC-JLET2x	S-80153CLMC-JJET2x
5.4 V \pm 2.0%	50 ms typ.	S-80154ANMC-JDFT2x	S-80154ALMC-JBFT2x
	100 ms typ.	S-80154BNMC-JHFT2x	S-80154BLMC-JFFT2x
	200 ms typ.	S-80154CNMC-JLFT2x	S-80154CLMC-JJFT2x
5.5 V \pm 2.0%	50 ms typ.	S-80155ANMC-JDGT2x	S-80155ALMC-JBGT2x
	100 ms typ.	S-80155BNMC-JHGT2x	S-80155BLMC-JFGT2x
	200 ms typ.	S-80155CNMC-JLGT2x	S-80155CLMC-JJGT2x
5.6 V \pm 2.0%	50 ms typ.	S-80156ANMC-JDHT2x	S-80156ALMC-JBHT2x
	100 ms typ.	S-80156BNMC-JHHT2x	S-80156BLMC-JFHT2x
	200 ms typ.	S-80156CNMC-JLHT2x	S-80156CLMC-JJHT2x
5.7 V \pm 2.0%	50 ms typ.	S-80157ANMC-JDIT2x	S-80157ALMC-JBIT2x
	100 ms typ.	S-80157BNMC-JHIT2x	S-80157BLMC-JFIT2x
	200 ms typ.	S-80157CNMC-JLIT2x	S-80157CLMC-JJIT2x
5.8 V \pm 2.0%	50 ms typ.	S-80158ANMC-JDJT2x	S-80158ALMC-JBJT2x
	100 ms typ.	S-80158BNMC-JHJT2x	S-80158BLMC-JFJT2x
	200 ms typ.	S-80158CNMC-JLJT2x	S-80158CLMC-JJJT2x
5.9 V \pm 2.0%	50 ms typ.	S-80159ANMC-JDKT2x	S-80159ALMC-JBKT2x
	100 ms typ.	S-80159BNMC-JHKT2x	S-80159BLMC-JFKT2x
	200 ms typ.	S-80159CNMC-JLKT2x	S-80159CLMC-JJKT2x
6.0 V \pm 2.0%	50 ms typ.	S-80160ANMC-JDLT2x	S-80160ALMC-JBLT2x
	100 ms typ.	S-80160BNMC-JHLT2x	S-80160BLMC-JFLT2x
	200 ms typ.	S-80160CNMC-JLLT2x	S-80160CLMC-JJLT2x

x: G or U

Please select products of environmental code = U for Sn 100%, halogen-free products.

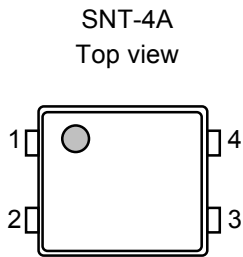
Detection voltage range	Delay time	Nch open-drain output products	CMOS output products
3.8 V \pm 2.0%	50 ms typ.	S-80138ANPF-JCXTFU	S-80138ALPF-JAXTFU
	100 ms typ.	S-80138BNPF-JGXTFU	S-80138BLPF-JEXTFU
	200 ms typ.	S-80138CNPF-JKXTFU	S-80138CLPF-JIXTFU
3.9 V \pm 2.0%	50 ms typ.	S-80139ANPF-JCYTFU	S-80139ALPF-JAYTFU
	100 ms typ.	S-80139BNPF-JGYTFU	S-80139BLPF-JEYTFU
	200 ms typ.	S-80139CNPF-JKYTFU	S-80139CLPF-JIYTFU
4.0 V \pm 2.0%	50 ms typ.	S-80140ANPF-JCZTFU	S-80140ALPF-JAZTFU
	100 ms typ.	S-80140BNPF-JGZTFU	S-80140BLPF-JEZTFU
	200 ms typ.	S-80140CNPF-JKZTFU	S-80140CLPF-JIZTFU
4.1 V \pm 2.0%	50 ms typ.	S-80141ANPF-JC2TFU	S-80141ALPF-JA2TFU
	100 ms typ.	S-80141BNPF-JG2TFU	S-80141BLPF-JE2TFU
	200 ms typ.	S-80141CNPF-JK2TFU	S-80141CLPF-JI2TFU
4.2 V \pm 2.0%	50 ms typ.	S-80142ANPF-JC3TFU	S-80142ALPF-JA3TFU
	100 ms typ.	S-80142BNPF-JG3TFU	S-80142BLPF-JE3TFU
	200 ms typ.	S-80142CNPF-JK3TFU	S-80142CLPF-JI3TFU
4.3 V \pm 2.0%	50 ms typ.	S-80143ANPF-JC4TFU	S-80143ALPF-JA4TFU
	100 ms typ.	S-80143BNPF-JG4TFU	S-80143BLPF-JE4TFU
	200 ms typ.	S-80143CNPF-JK4TFU	S-80143CLPF-JI4TFU
4.4 V \pm 2.0%	50 ms typ.	S-80144ANPF-JC5TFU	S-80144ALPF-JA5TFU
	100 ms typ.	S-80144BNPF-JG5TFU	S-80144BLPF-JE5TFU
	200 ms typ.	S-80144CNPF-JK5TFU	S-80144CLPF-JI5TFU
4.5 V \pm 2.0%	50 ms typ.	S-80145ANPF-JC6TFU	S-80145ALPF-JA6TFU
	100 ms typ.	S-80145BNPF-JG6TFU	S-80145BLPF-JE6TFU
	200 ms typ.	S-80145CNPF-JK6TFU	S-80145CLPF-JI6TFU
4.6 V \pm 2.0%	50 ms typ.	S-80146ANPF-JC7TFU	S-80146ALPF-JA7TFU
	100 ms typ.	S-80146BNPF-JG7TFU	S-80146BLPF-JE7TFU
	200 ms typ.	S-80146CNPF-JK7TFU	S-80146CLPF-JI7TFU
4.7 V \pm 2.0%	50 ms typ.	S-80147ANPF-JC8TFU	S-80147ALPF-JA8TFU
	100 ms typ.	S-80147BNPF-JG8TFU	S-80147BLPF-JE8TFU
	200 ms typ.	S-80147CNPF-JK8TFU	S-80147CLPF-JI8TFU
4.8 V \pm 2.0%	50 ms typ.	S-80148ANPF-JC9TFU	S-80148ALPF-JA9TFU
	100 ms typ.	S-80148BNPF-JG9TFU	S-80148BLPF-JE9TFU
	200 ms typ.	S-80148CNPF-JK9TFU	S-80148CLPF-JI9TFU
4.9 V \pm 2.0%	50 ms typ.	S-80149ANPF-JDATFU	S-80149ALPF-JBATFU
	100 ms typ.	S-80149BNPF-JHATFU	S-80149BLPF-JFATFU
	200 ms typ.	S-80149CNPF-JLATFU	S-80149CLPF-JJATFU
5.0 V \pm 2.0%	50 ms typ.	S-80150ANPF-JDBTFU	S-80150ALPF-JBBTFU
	100 ms typ.	S-80150BNPF-JHBTFU	S-80150BLPF-JFBTFU
	200 ms typ.	S-80150CNPF-JLBTFU	S-80150CLPF-JJBTFU
5.1 V \pm 2.0%	50 ms typ.	S-80151ANPF-JDCTFU	S-80151ALPF-JBCTFU
	100 ms typ.	S-80151BNPF-JHCTFU	S-80151BLPF-JFCTFU
	200 ms typ.	S-80151CNPF-JLCTFU	S-80151CLPF-JJCTFU
5.2 V \pm 2.0%	50 ms typ.	S-80152ANPF-JDDTFU	S-80152ALPF-JBDTFU
	100 ms typ.	S-80152BNPF-JHDTFU	S-80152BLPF-JFDTFU
	200 ms typ.	S-80152CNPF-JLDTFU	S-80152CLPF-JJDTFU
5.3 V \pm 2.0%	50 ms typ.	S-80153ANPF-JDETFU	S-80153ALPF-JBETFU
	100 ms typ.	S-80153BNPF-JHETFU	S-80153BLPF-JFETFU
	200 ms typ.	S-80153CNPF-JLETFU	S-80153CLPF-JJETFU

Detection voltage range	Delay time	Nch open-drain output products	CMOS output products
5.4 V \pm 2.0%	50 ms typ.	S-80154ANPF-JDFTFU	S-80154ALPF-JBFTFU
	100 ms typ.	S-80154BNPF-JHFTFU	S-80154BLPF-JFFTFU
	200 ms typ.	S-80154CNPF-JLFTFU	S-80154CLPF-JJFTFU
5.5 V \pm 2.0%	50 ms typ.	S-80155ANPF-JDGTFU	S-80155ALPF-JBGTFU
	100 ms typ.	S-80155BNPF-JHGTFU	S-80155BLPF-JFUTFU
	200 ms typ.	S-80155CNPF-JLGTFU	S-80155CLPF-JJGTFU
5.6 V \pm 2.0%	50 ms typ.	S-80156ANPF-JDHTFU	S-80156ALPF-JBHTFU
	100 ms typ.	S-80156BNPF-JHHTFU	S-80156BLPF-JFHTFU
	200 ms typ.	S-80156CNPF-JLHTFU	S-80156CLPF-JJHTFU
5.7 V \pm 2.0%	50 ms typ.	S-80157ANPF-JDITFU	S-80157ALPF-JBITFU
	100 ms typ.	S-80157BNPF-JHITFU	S-80157BLPF-JFITFU
	200 ms typ.	S-80157CNPF-JLITFU	S-80157CLPF-JJITFU
5.8 V \pm 2.0%	50 ms typ.	S-80158ANPF-JDJTFU	S-80158ALPF-JBJTFU
	100 ms typ.	S-80158BNPF-JHJTFU	S-80158BLPF-JFJTFU
	200 ms typ.	S-80158CNPF-JLJTFU	S-80158CLPF-JJJTFU
5.9 V \pm 2.0%	50 ms typ.	S-80159ANPF-JDKTFU	S-80159ALPF-JBKTFU
	100 ms typ.	S-80159BNPF-JHKTFU	S-80159BLPF-JFKTFU
	200 ms typ.	S-80159CNPF-JLKTFU	S-80159CLPF-JJKTFU
6.0 V \pm 2.0%	50 ms typ.	S-80160ANPF-JDLTFU	S-80160ALPF-JBLTFU
	100 ms typ.	S-80160BNPF-JHLTFU	S-80160BLPF-JFLTUFU
	200 ms typ.	S-80160CNPF-JLLTFU	S-80160CLPF-JJLTFU



Pin No.	Pin name	Pin description
1	DS	ON/OFF switch for delay time
2	VSS	GND pin
3	NC	No connection
4	OUT	Voltage detection output pin
5	VDD	Voltage input pin

Refer to “ ” in “■ ” for operation.
 The NC pin is electrically open.
 The NC pin can be connected to VDD or VSS.



Pin No.	Pin name	Pin description
1	VSS	GND pin
2	DS	ON/OFF switch for delay time
3	VDD	Voltage input pin
4	OUT	Voltage detection output pin

Refer to “ ” in “■ ” for operation.

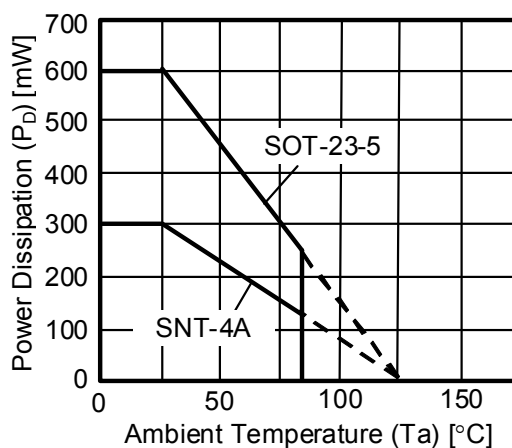
(Ta=25°C unless otherwise specified)

Item	Symbol	Absolute maximum ratings	Unit
Power supply voltage	$V_{DD}-V_{SS}$	12	V
Output voltage	Nch open-drain output products CMOS output products	V_{OUT}	$V_{SS}-0.3$ to $V_{SS}+12$
			$V_{SS}-0.3$ to $V_{DD}+0.3$
Output current	I_{OUT}	50	mA
Power dissipation	SOT-23-5	P_D	250 (When not mounted on board)
			600
	SNT-4A		140 (When not mounted on board)
			300
Operating ambient temperature	T_{opr}	-40 to +85	°C
Storage temperature	T_{stg}	-40 to +125	

When mounted on board

[Mounted board]

- (1) Board size: 114.3 mm × 76.2 mm × t1.6 mm
- (2) Board name: JEDEC STANDARD51-7



(Ta=25 °C Unless otherwise specified)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Test circuit	
Detection voltage	$-V_{DET}$	—	$-V_{DET(S)} \times 0.98$	$-V_{DET(S)}$	$-V_{DET(S)} \times 1.02$	V	1	
Hysteresis width	V_{HYS}	—	30	60	100	mV		
Current consumption	I_{SS}	$V_{DD}=3.5\text{ V}$	S-80122 to 26	—	1.3	3.3	μA	
		$V_{DD}=4.5\text{ V}$	S-80127 to 39	—	1.5	3.5		
		$V_{DD}=6.5\text{ V}$	S-80140 to 60	—	1.8	4.0		
Operating voltage	V_{DD}	—	0.95	—	10.0	V		
Output current	I_{OUT}	Output transistor, Nch, $V_{OUT}=0.5\text{ V}$	$V_{DD}=1.2\text{ V}$ S-80122 to 60	0.75	1.5	—	mA	2
			$V_{DD}=2.4\text{ V}$ S-80127 to 60	3.0	6.0	—		
		Only for CMOS output products, Output transistor, Pch, $V_{DD}-V_{OUT}=0.5\text{ V}$	$V_{DD}=4.8\text{ V}$ S-80122 to 39	1.0	2.0	—		
			$V_{DD}=6.0\text{ V}$ S-80140 to 54	1.25	2.5	—		
Leakage current	I_{LEAK}	Only for Nch open-drain output products, Output transistor, Nch, $V_{DD}=10.0\text{ V}$, $V_{OUT}=10.0\text{ V}$	—	—	0.1	μA		
			—	—	0.1	μA		
Detection voltage temperature coefficient	$\frac{\Delta - V_{DET}}{\Delta Ta \bullet -V_{DET}}$	Ta=−40 °C to +85 °C	—	±120	±360	ppm/°C	1	
Delay time 1	t_{D1}	$V_{DD}=-V_{DET}+1\text{ V}$, DS pin Low	S-801xxAx	32.5	50	72.5	ms	
			S-801xxBx	65	100	145		
			S-801xxCx	130	200	290		
Delay time 2	t_{D2}	$V_{DD}=-V_{DET}+1\text{ V}$, DS pin High	110	220	330	μs	3	
Input voltage	V_{SH}	DS pin, $V_{DD}=6.0\text{ V}$	1.0	—	—	V	4	
	V_{SL}	DS pin, $V_{DD}=6.0\text{ V}$	—	—	0.3	V		

$-V_{DET}$: Actual detection voltage value, $-V_{DET(S)}$: Specified detection voltage value (The center value of the detection voltage range in .)

Temperature change ratio for the detection voltage [mV/°C] is calculated using the following equation.

$$\frac{\Delta - V_{DET}}{\Delta Ta} [\text{mV}/^{\circ}\text{C}] = -V_{DET(S)}(\text{Typ.})[\text{V}] \times \frac{\Delta - V_{DET}}{\Delta Ta \bullet -V_{DET}} [\text{ppm}/^{\circ}\text{C}] \div 1000$$

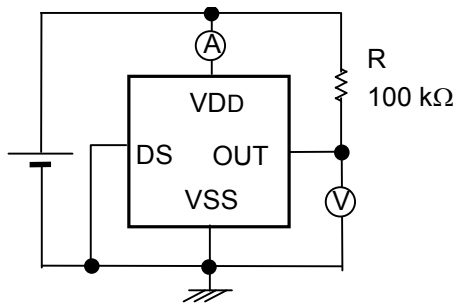
Temperature change ratio of the detection voltage

Specified detection voltage value

Detection voltage temperature coefficient

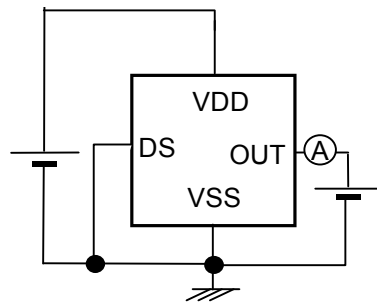


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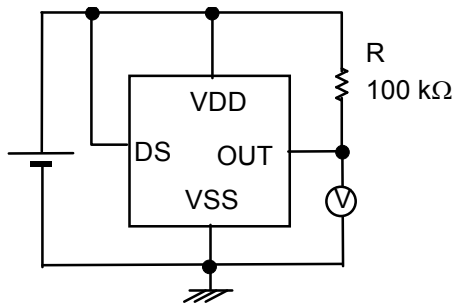


R is unnecessary for CMOS output products.

2.

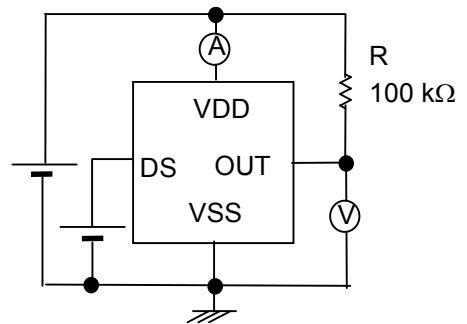


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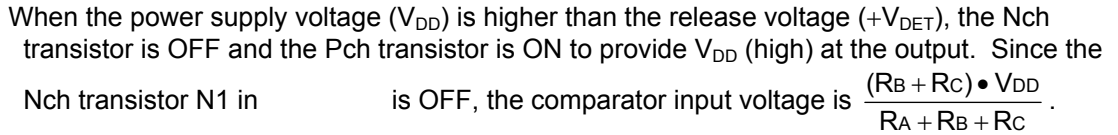
R is unnecessary for CMOS output products.

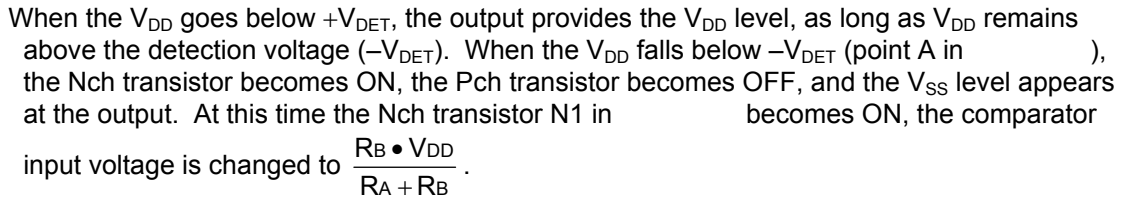
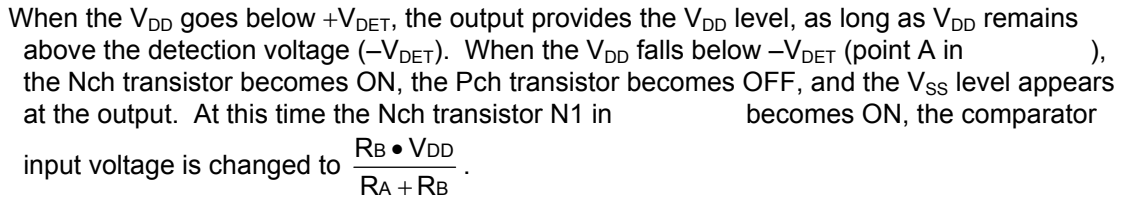
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R is unnecessary for CMOS output products.

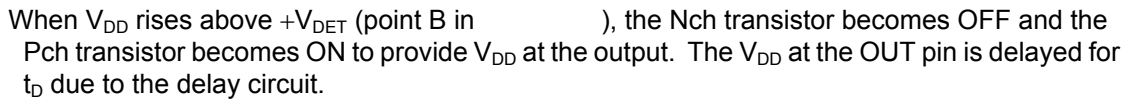


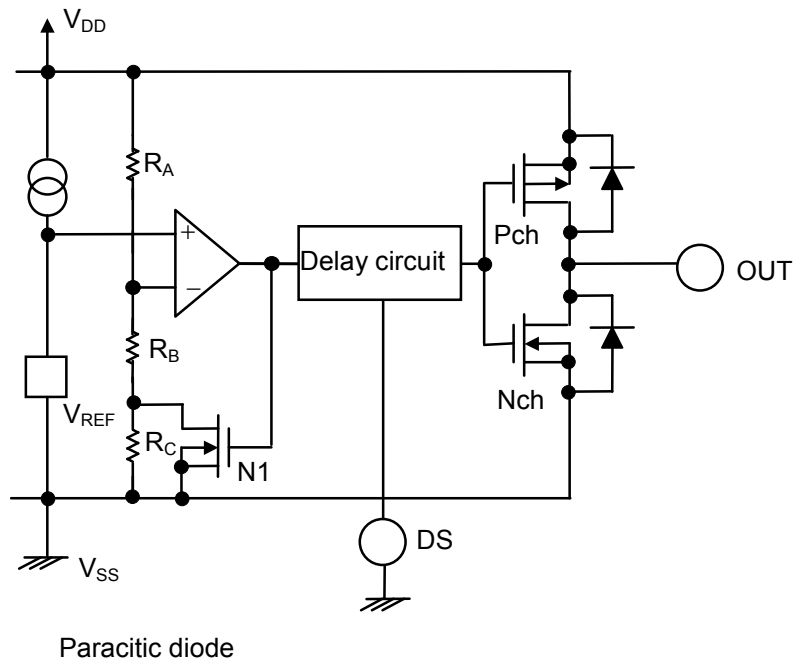
When the power supply voltage (V_{DD}) is higher than the release voltage ($+V_{DET}$), the Nch transistor is OFF and the Pch transistor is ON to provide V_{DD} (high) at the output. Since the Nch transistor N1 in  is OFF, the comparator input voltage is $\frac{(R_B + R_C) \cdot V_{DD}}{R_A + R_B + R_C}$.

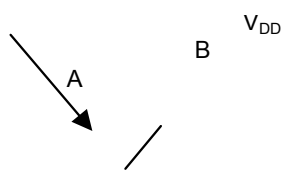
When the V_{DD} goes below $+V_{DET}$, the output provides the V_{DD} level, as long as V_{DD} remains above the detection voltage ($-V_{DET}$). When the V_{DD} falls below $-V_{DET}$ (point A in ) , the Nch transistor becomes ON, the Pch transistor becomes OFF, and the V_{SS} level appears at the output. At this time the Nch transistor N1 in  becomes ON, the comparator input voltage is changed to $\frac{R_B \cdot V_{DD}}{R_A + R_B}$.

When the V_{DD} falls below the minimum operating voltage, the output becomes undefined, or goes to V_{DD} when the output is pulled up to V_{DD} .

The V_{SS} level appears when V_{DD} rises above the minimum operating voltage. The V_{SS} level still appears even when V_{DD} surpasses the $-V_{DET}$, as long as it does not exceed the release voltage $+V_{DET}$.

When V_{DD} rises above $+V_{DET}$ (point B in ) , the Nch transistor becomes OFF and the Pch transistor becomes ON to provide V_{DD} at the output. The V_{DD} at the OUT pin is delayed for t_D due to the delay circuit.





The temperature coefficient $\frac{\Delta + V_{DET}}{\Delta Ta}$ of the release voltage is calculated by the temperature coefficient $\frac{\Delta - V_{DET}}{\Delta Ta}$ for the detection voltage as follows:

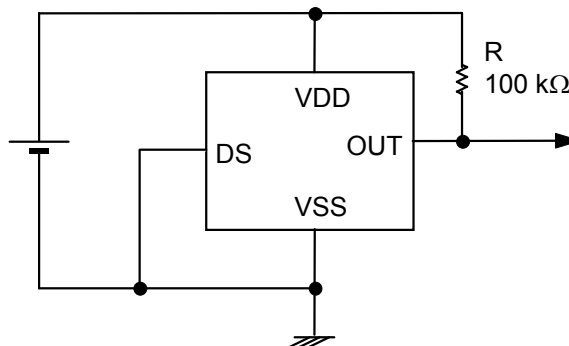
$$\frac{\Delta + V_{DET}}{\Delta Ta} = \frac{+V_{DET}}{-V_{DET}} \times \frac{\Delta - V_{DET}}{\Delta Ta}$$

The temperature coefficients for the release voltage and the detection voltage have the same sign consequently.

The temperature characteristics for the hysteresis voltage is expressed as $\frac{\Delta + V_{DET}}{\Delta Ta} - \frac{\Delta - V_{DET}}{\Delta Ta}$ and is calculated as follows:

$$\frac{\Delta + V_{DET}}{\Delta Ta} - \frac{\Delta - V_{DET}}{\Delta Ta} = \frac{V_{HYS}}{-V_{DET}} \times \frac{\Delta - V_{DET}}{\Delta Ta}$$

■



R is unnecessary for CMOS output products.



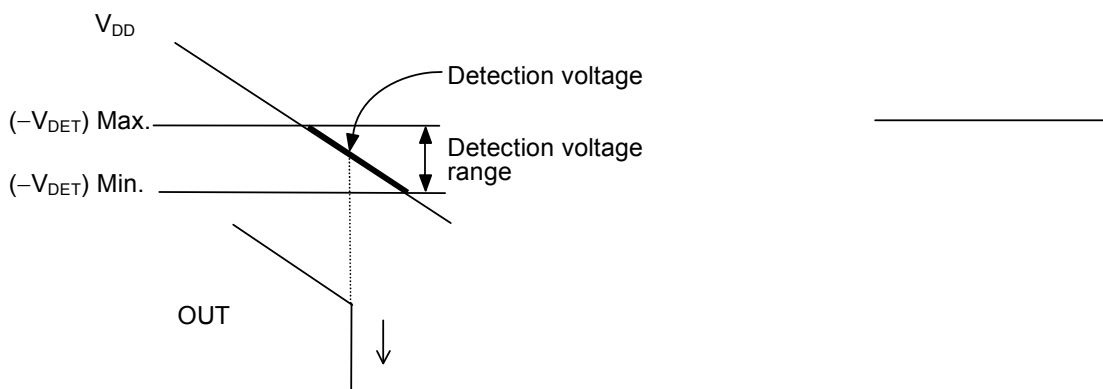
+

The detection voltage ($-V_{\text{DET}}$) is a voltage at which the output turns to low. The detection voltage varies slightly among products of the same specification. The variation of detection voltage between the specified minimum ($-V_{\text{DET}}$) Min. and the maximum ($-V_{\text{DET}}$) Max. is called the detection voltage range (Refer to).

e.g. For the S-80122AN, the detection voltage lies in the range of $2.156 \leq -V_{\text{DET}} \leq 2.244$.
This means that some S-80122ANs have 2.156 V for $-V_{\text{DET}}$ and some have 2.244 V.

The release voltage ($+V_{\text{DET}}$) is a voltage at which the output turns to high. The release voltage varies slightly among products of the same specification. The variation of release voltages between the specified minimum ($+V_{\text{DET}}$) Min. and the maximum ($+V_{\text{DET}}$) Max. is called the release voltage range (Refer to).

e.g. For the S-80122AN, the release voltage lies in the range of $2.186 \leq +V_{\text{DET}} \leq 2.344$.
This means that some S-80122ANs have 2.186 V for $+V_{\text{DET}}$ and some have 2.344 V.



Hysteresis width is the voltage difference between the detection voltage and the release voltage (The voltage at point B–The voltage at point A= V_{HYS} in). The existence of the hysteresis width prevents malfunction caused by noise on input signal.

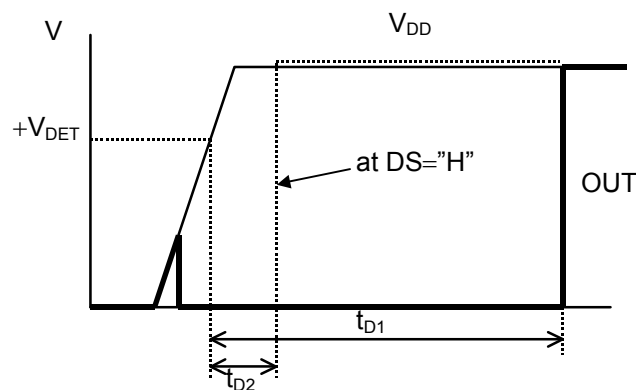
Delay time is a time internally measured from the instant at which input voltage to the VDD pin exceeds the release voltage ($+V_{DET}$) to the point at which the output of the OUT pin inverts. The delay time is fixed in each series distinguished by A, B and C.

S-801xxAx series: typ. 50 ms

S-801xxBx series: typ. 100 ms

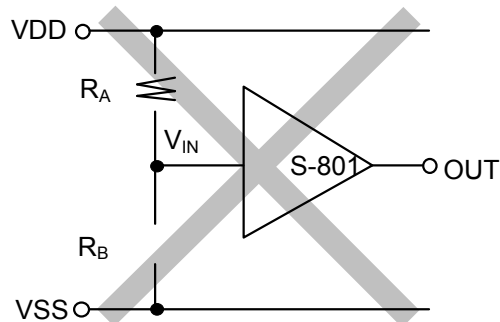
S-801xxCx series: typ. 200 ms

The output of the OUT pin can be inverted in a short delay time (t_{D2}) by setting the DS pin High (Refer to).



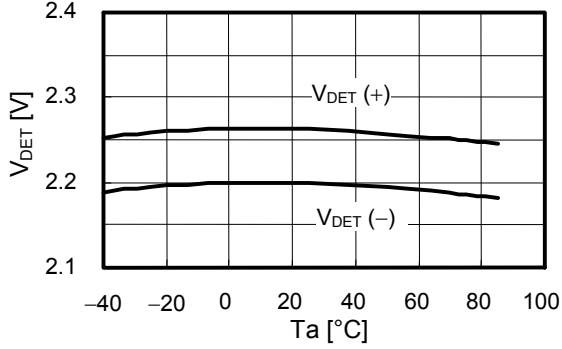
The through-type current refers to the current that flows instantaneously at the time of detection and release of a voltage detector. The through-type current flows at a frequency of 20 kHz during release delay time since the internal logic circuit operates.

In applications where a resistor is connected to the voltage detector input (), taking a CMOS active low products for example, the through-type current which is generated when the output goes from low to high (release) causes a voltage drop equal to [through-type current] × [input resistance] across the resistor. When the input voltage drops below the detection voltage ($-V_{DET}$) as a result, the output voltage goes to low level. In this state, the through-type current stops and its resultant voltage drop disappears, and the output goes from low to high. The through-type current is again generated, a voltage drop appears, and repeating the process finally induces oscillation.

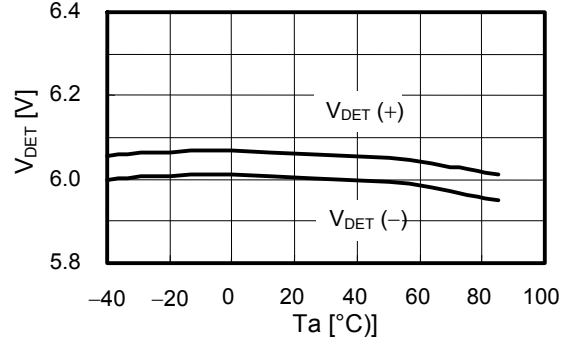




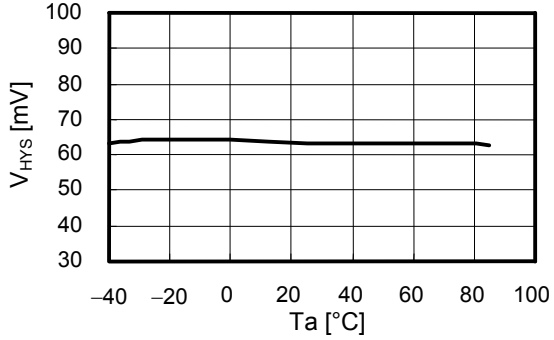
S-80122AL



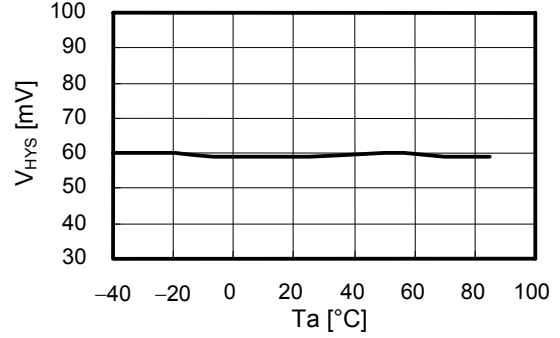
S-80160AL



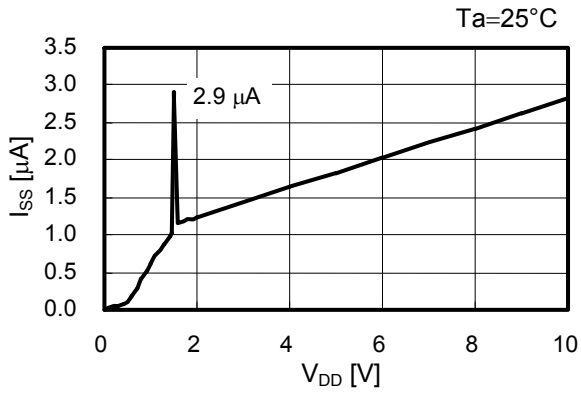
S-80122AL



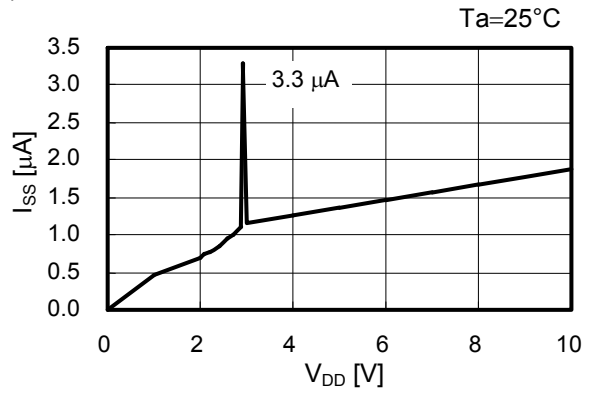
S-80160AL



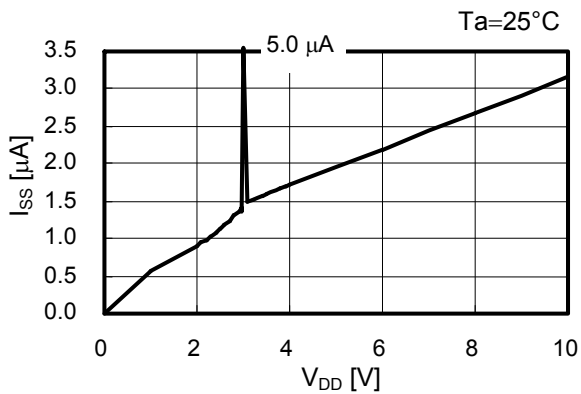
(a) S-80122AL



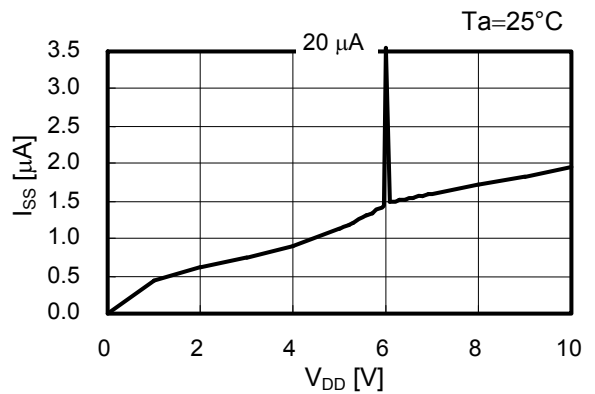
(b) S-80129AL



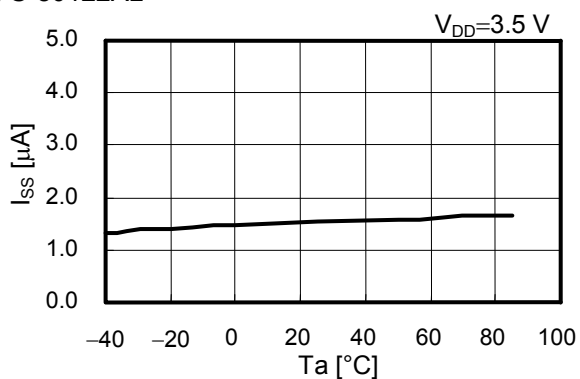
(c) S-80130AL



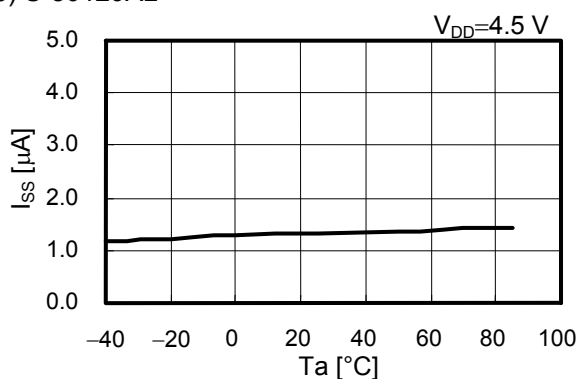
(d) S-80160AL



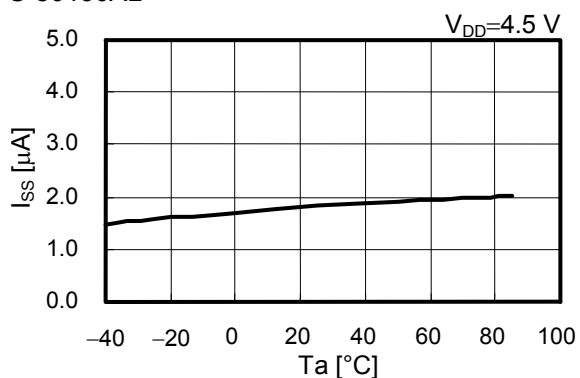
(a) S-80122AL



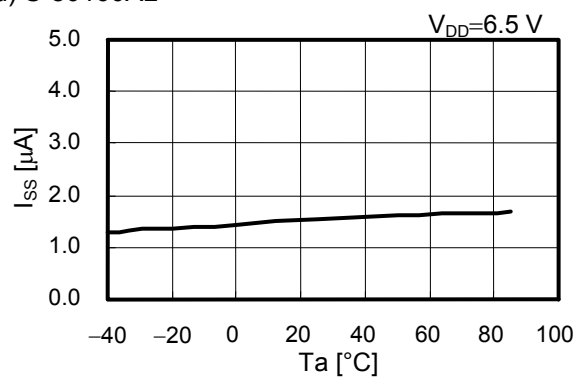
(b) S-80129AL



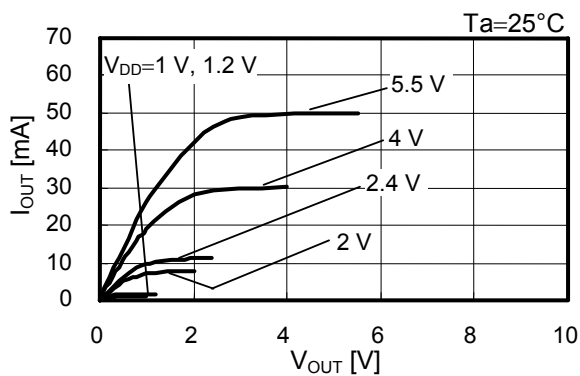
(c) S-80130AL



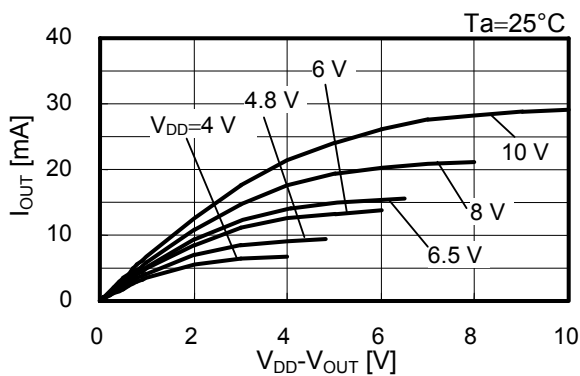
(d) S-80160AL



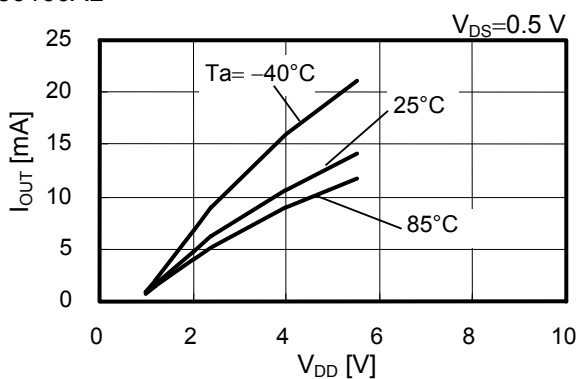
S-80160AL



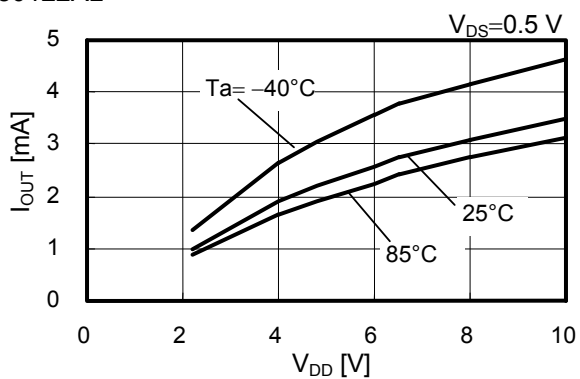
S-80122AL



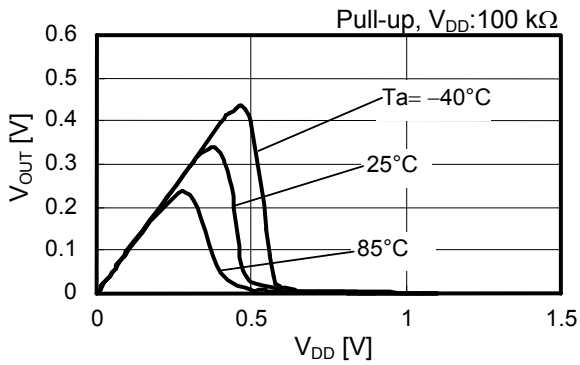
S-80160AL



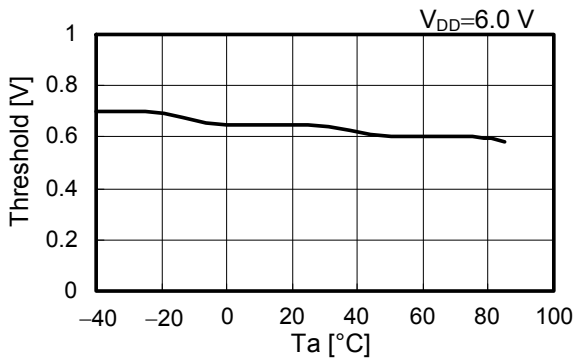
S-80122AL



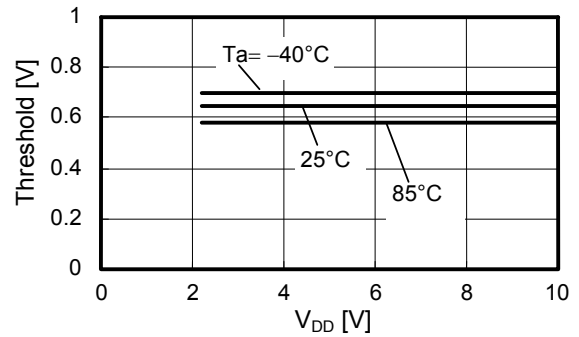
S-80122AN



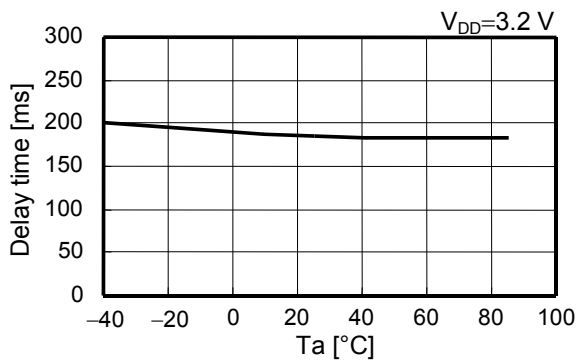
S-80122AL



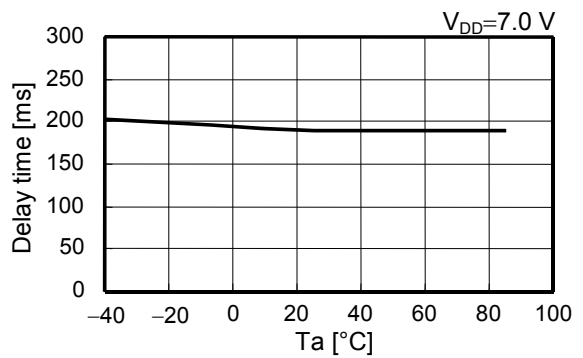
S-80122AL



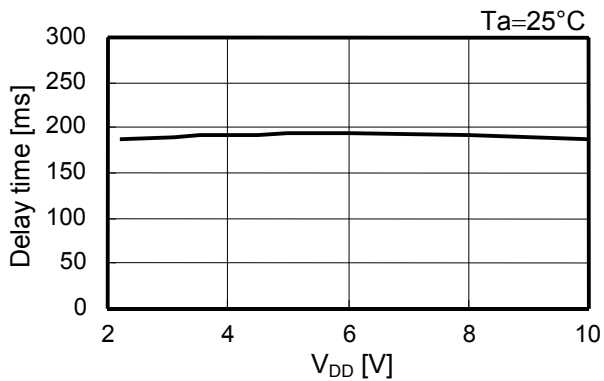
S-80122CL



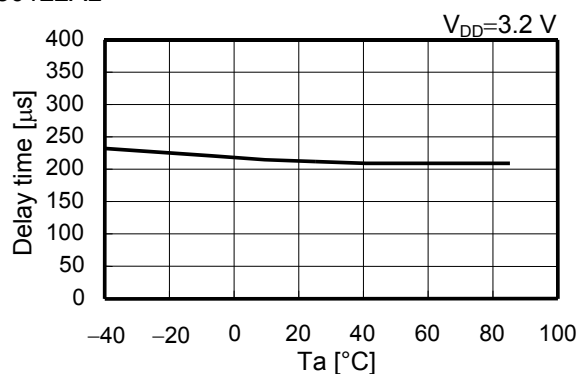
S-80160CL



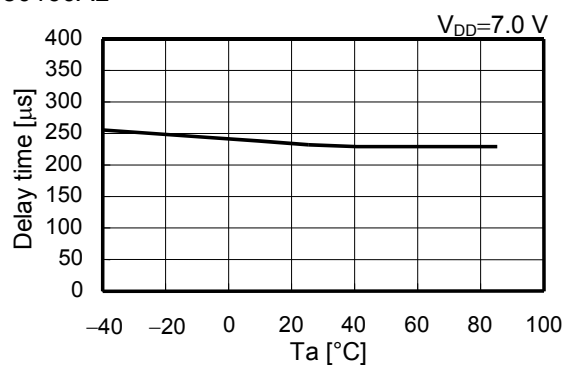
S-80122CL



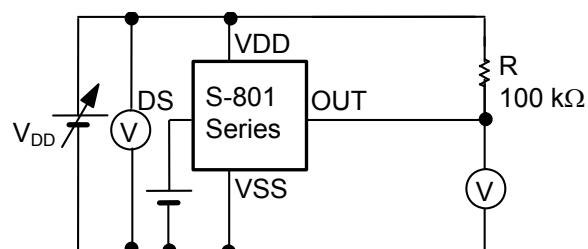
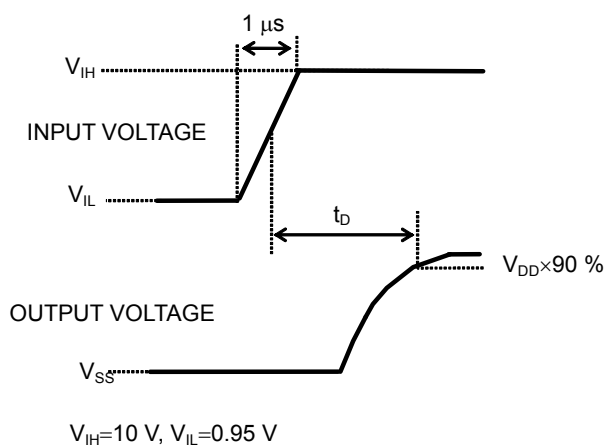
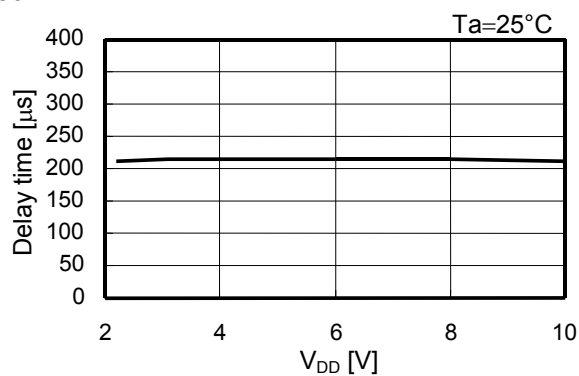
S-80122AL



S-80160AL

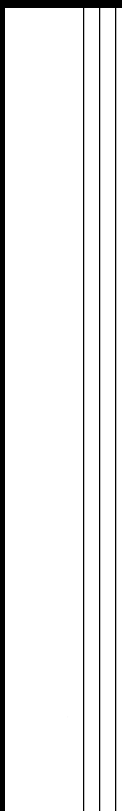
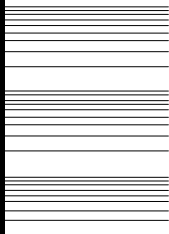


S-80122AN

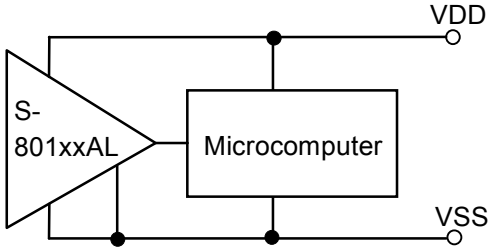


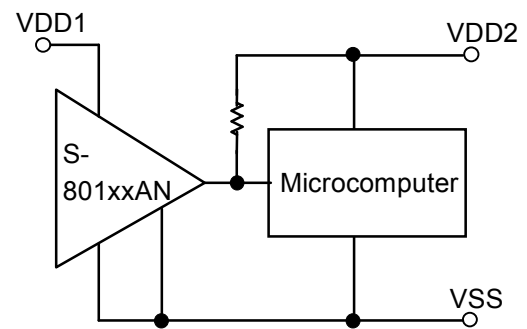
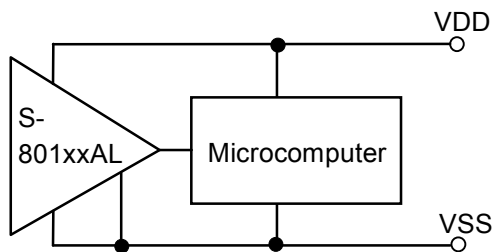
Set to V_{DD} or V_{SS} .
 R is not necessary for CMOS output products.

S-80122AN

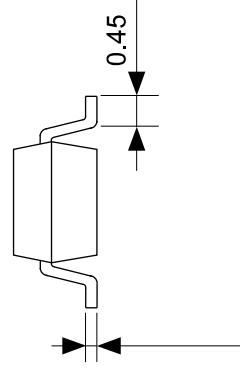
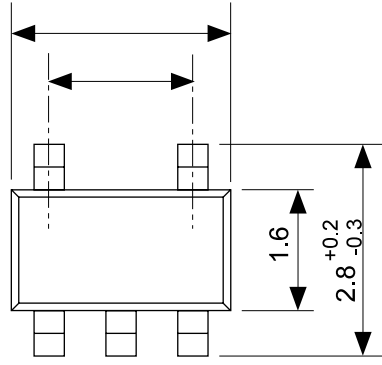
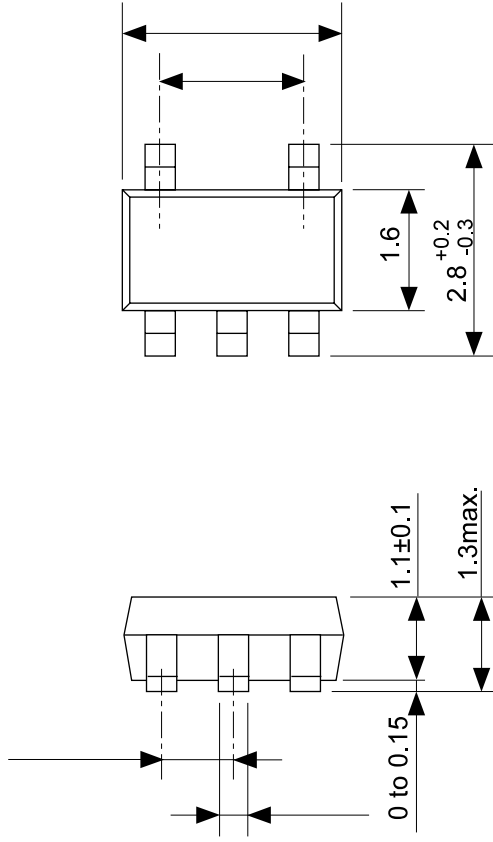


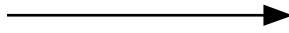
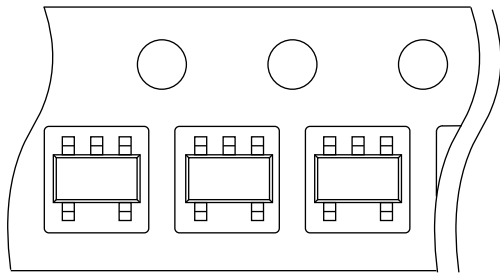
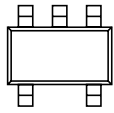
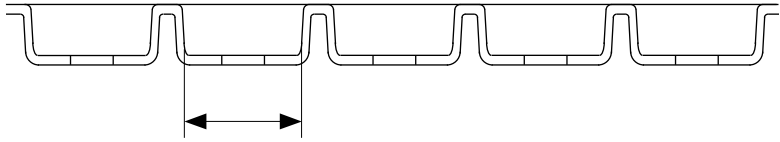
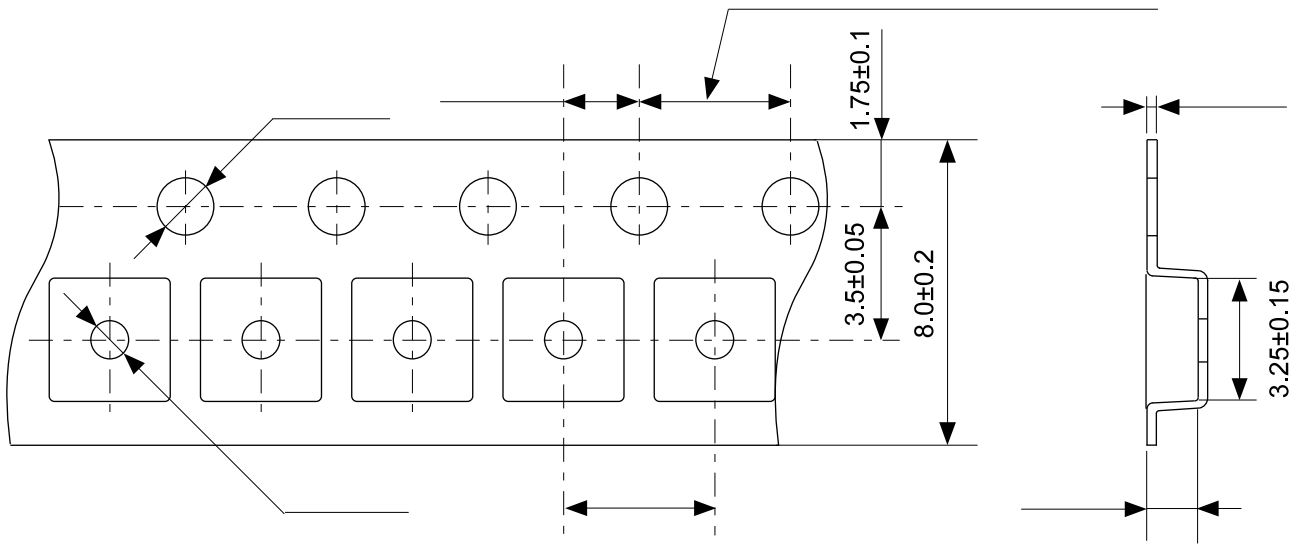
If the power supply voltage to a microcomputer falls below the specified level, an unspecified operation may be performed or the contents of the memory register may be lost. When power supply voltage returns to normal, the microcomputer needs to be initialized before normal operations can be done. Reset circuits protect microcomputers in the event of current being momentarily switched off or lowered.

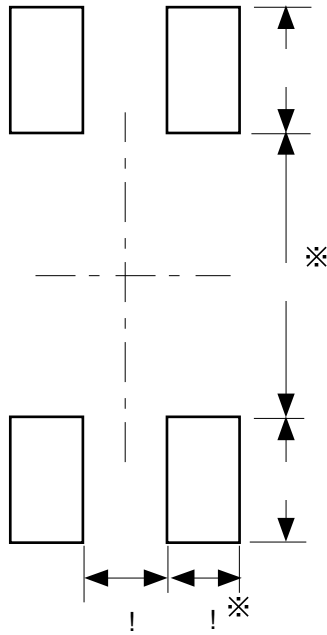
Reset circuits shown in  can be easily constructed with the help of the S-801 series that has low operating voltage, a high-precision detection voltage, hysteresis, and a built-in delay circuit.



(Nch open-drain output products only.)







※ ランドパターンの幅に注意してください、
 ※ パッケージ中央にランドパターンを広げないでください、

- 注意
1. パッケージのモールド樹脂下にシルク印刷やハンダ印刷などしないでください。
 2. パッケージ下の配線上のソルダーレジストなどの厚みをランドパターン表面から!!"以下にしてください。
 3. マスク開口サイズと開口位置はランドパターンと てください。
 . 詳細は "SNTパッケージ活用の手引き" を参照してください。

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1. All the information described herein (product data, specifications, figures, tables, programs, algorithms and application circuit examples, etc.) is current as of publishing date of this document and is subject to change without notice.
2. The circuit examples and the usages described herein are for reference only, and do not guarantee the success of any specific mass-production design.
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ABLIC Inc. is not responsible for damages caused by failures and / or accidents, etc. that occur due to the use of the products outside their specified ranges.
5. When using the products, confirm their applications, and the laws and regulations of the region or country where they are used and verify suitability, safety and other factors for the intended use.
6. When exporting the products, comply with the Foreign Exchange and Foreign Trade Act and all other export-related laws, and follow the required procedures.
7. The products must not be used or provided (exported) for the purposes of the development of weapons of mass destruction or military use. ABLIC Inc. is not responsible for any provision (export) to those whose purpose is to develop, manufacture, use or store nuclear, biological or chemical weapons, missiles, or other military use.
8. The products are not designed to be used as part of any device or equipment that may affect the human body, human life, or assets (such as medical equipment, disaster prevention systems, security systems, combustion control systems, infrastructure control systems, vehicle equipment, traffic systems, in-vehicle equipment, aviation equipment, aerospace equipment, and nuclear-related equipment), excluding when specified for in-vehicle use or other uses. Do not apply the products to the above listed devices and equipments without prior written permission by ABLIC Inc. Especially, the products cannot be used for life support devices, devices implanted in the human body and devices that directly affect human life, etc.
Prior consultation with our sales office is required when considering the above uses.
ABLIC Inc. is not responsible for damages caused by unauthorized or unspecified use of our products.
9. Semiconductor products may fail or malfunction with some probability.
The user of the products should therefore take responsibility to give thorough consideration to safety design including redundancy, fire spread prevention measures, and malfunction prevention to prevent accidents causing injury or death, fires and social damage, etc. that may ensue from the products' failure or malfunction.
The entire system must be sufficiently evaluated and applied on customer's own responsibility.
10. The products are not designed to be radiation-proof. The necessary radiation measures should be taken in the product design by the customer depending on the intended use.
11. The products do not affect human health under normal use. However, they contain chemical substances and heavy metals and should therefore not be put in the mouth. The fracture surfaces of wafers and chips may be sharp. Be careful when handling these with the bare hands to prevent injuries, etc.
12. When disposing of the products, comply with the laws and ordinances of the country or region where they are used.
13. The information described herein contains copyright information and know-how of ABLIC Inc.
The information described herein does not convey any license under any intellectual property rights or any other rights belonging to ABLIC Inc. or a third party. Reproduction or copying of the information from this document or any part of this document described herein for the purpose of disclosing it to a third-party without the express permission of ABLIC Inc. is strictly prohibited.
14. For more details on the information described herein, contact our sales office.

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