

# CMOS System Reset IC with Delay Time Circuit Monolithic IC PST83XX, 84XX Series

May 21, 2009

## Outline

In various CPU systems or other logic systems, when the time of a power supply injection and a power supply are severed for a moment, this IC detects supply voltage and applies reset to a system.

To  $\pm 1.5\%$  of detection voltage accuracy of the conventional product, a maximum of  $\pm 0.5\%$  of super-high precision is realized, and it is more suitable for battery detection etc. The accuracy from elegance is conventionally raised from  $+100/-50\%$  to  $\pm 10\%$  also about delay resistance.

Moreover, the component-side product is realizing the small space using SSON-4.

## Features

- |                                |  |
|--------------------------------|--|
| 1. High accuracy               | $\pm 0.5\%$ typ. / 2.0~6.0V<br>$\pm 0.8\%$ typ. / 0.8~1.9V |
| 2. Super low supply current    | 0.35 $\mu$ A typ.  |
| 3. Component-side product      | 1.10 $\times$ 1.40mm (SSON-4)                              |
| 4. Operating-temperature range | -40~+105°C   |
| 5. Delay resistance accuracy   | 10M $\Omega$ $\pm 10\%$                                    |
| 6. Detecting voltage rank      | 0.8~6.0V (0.1V step)                                       |

## Packages

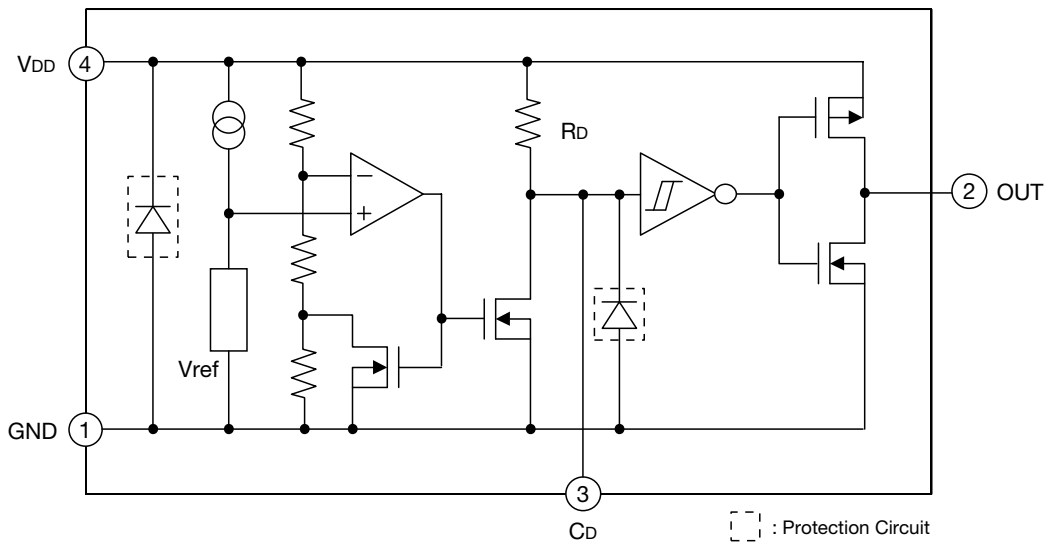
- SSON-4
- SOT-25A
- SC-82AB

## Applications

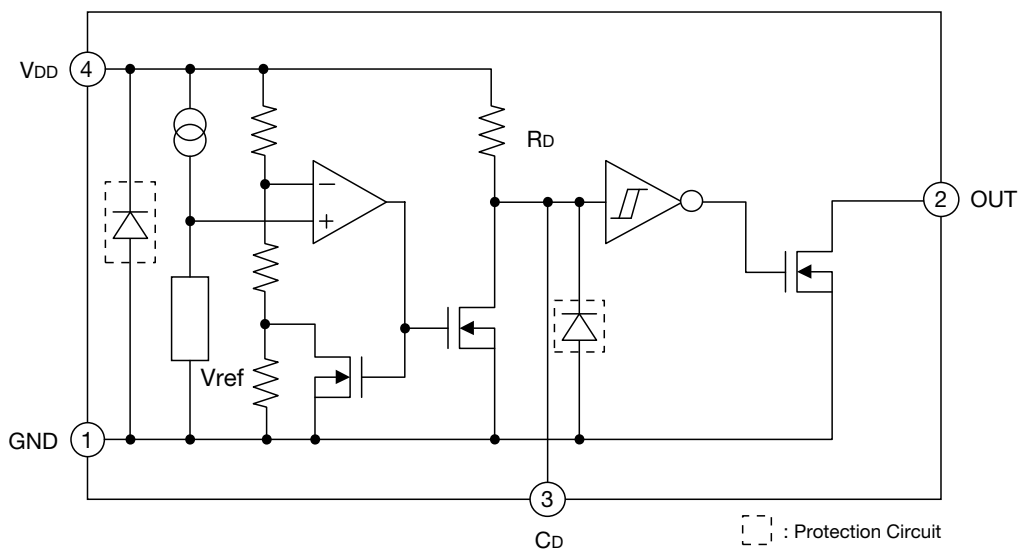
1. Reset circuits for CPUs and MPUs
2. Reset circuits for logic circuits
3. Battery voltage check circuits
4. Back-up power supply switching circuits
5. Level detection circuits

**Block Diagram**

■ PST83XX \*①-④ in the circuit diagram is pin number for the SSON-4 package.

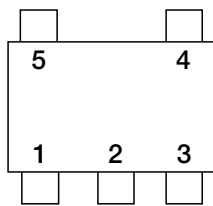


■ PST84XX \*①-④ in the circuit diagram is pin number for the SSON-4 package.



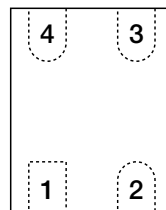
## Pin Assignment

### PST83XX, PST84XX



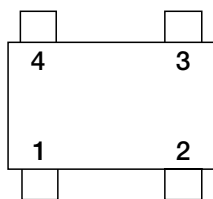
SOT-25A  
(TOP VIEW)

1	OUT
2	V <sub>DD</sub>
3	GND
4	NC
5	C <sub>D</sub>



SSON-4  
(TOP VIEW)

1	GND
2	OUT
3	C <sub>D</sub>
4	V <sub>DD</sub>



SC-82AB  
(TOP VIEW)

1	GND
2	V <sub>DD</sub>
3	C <sub>D</sub>
4	OUT

## Pin Description

### PST83XX, PST84XX (SOT-25A)

Pin No.	Pin name	Functions
1	OUT	Reset Signal Output Pin
2	V <sub>DD</sub>	V <sub>DD</sub> Pin / Voltage Detect Pin
3	GND	GND Pin
4	NC	No Connection
5	C <sub>D</sub>	Capacitor Connect Pin with Delay

### PST83XX, PST84XX (SSON-4)

Pin No.	Pin name	Functions
1	GND	GND Pin
2	OUT	Reset Signal Output Pin
3	C <sub>D</sub>	Capacitor Connect Pin with Delay
4	V <sub>DD</sub>	V <sub>DD</sub> Pin / Voltage Detect Pin

### PST83XX, PST84XX (SC-82AB)

Pin No.	Pin name	Functions
1	GND	GND Pin
2	V <sub>DD</sub>	V <sub>DD</sub> Pin / Voltage Detect Pin
3	C <sub>D</sub>	Capacitor Connect Pin with Delay
4	OUT	Reset Signal Output Pin

## Absolute Maximum Ratings

### ■ PST83XX

Item	Symbol	Ratings	Units
Supply voltage	$V_{DD}$ max.	-0.3~+12.0	V
Output voltage	OUT	-0.3~( $V_{DD}+0.3$ )	V
Input current ( $V_{DD}$ )	$I_{DD}$	20	mA
Output current (RESET, $\overline{\text{RESET}}$ )	$I_{OUT}$	20	mA
$C_D$ Pin Input voltage	$V_{CD}$	$V_{SS} - 0.3 \sim +12.0$	V
Power dissipation	$P_D$	150 (SOT-25A, SC-82AB) 330 (SSON-4) (note)	mW
Operating temperature	$T_{OPR}$	-40~+105	°C
Storage temperature	$T_{STG}$	-65~+150	°C

### ■ PST84XX

Item	Symbol	Ratings	Units
Supply voltage	$V_{DD}$ max.	-0.3~+12.0	V
Output voltage	OUT	-0.3~+12.0	V
Input current ( $V_{DD}$ )	$I_{DD}$	20	mA
Output current (RESET, $\overline{\text{RESET}}$ )	$I_{OUT}$	20	mA
$C_D$ pin Input voltage	$V_{CD}$	$V_{SS} - 0.3 \sim +12.0$	V
Power dissipation	$P_D$	150 (SOT-25A, SC-82AB) 330 (SSON-4) (note)	mW
Operating temperature	$T_{OPR}$	-40~+105	°C
Storage temperature	$T_{STG}$	-65~+150	°C

note : With PC board of glass epoxy. (The tab pin is not connected with PC board.)  
PC board size of 110×40×0.8mm

## Recommended Operating Conditions

Item	Symbol	Ratings	Units
Operating temperature	$T_{OPR}$	-40~+105	°C
Supply voltage	$V_{DD}$	0.70~10.0	V

**Electrical Characteristics** (Except where noted otherwise Ta=25°C)

■ PST83XX

Item	Symbol	Measurement conditions	Rank	Min.	Typ.	Max.	Units	Circuit
Reset threshold	V <sub>TH</sub>	Ta=+25°C Ta=-40~+85°C	8308	0.7936	0.800	0.8064	V	(2)
				0.7800		0.8200		
			8309	0.8928	0.900	0.9072		
				0.8775		0.9225		
			8310	0.9920	1.000	1.0080		
				0.9750		1.0250		
			8311	1.0912	1.100	1.1088		
				1.0725		1.1275		
			8312	1.1904	1.200	1.2096		
				1.1700		1.2300		
			8313	1.2896	1.300	1.3104		
				1.2675		1.3325		
			8314	1.3888	1.400	1.4112		
				1.3650		1.4350		
			8315	1.4880	1.500	1.5120		
				1.4625		1.5375		
			8316	1.5872	1.600	1.6128		
				1.5600		1.6400		
			8317	1.6864	1.700	1.7136		
				1.6575		1.7425		
			8318	1.7856	1.800	1.8144		
				1.7550		1.8450		
			8319	1.8848	1.900	1.9152		
				1.8525		1.9475		
			8320	1.9900	2.000	2.0100		
				1.9500		2.0500		
			8321	2.0895	2.100	2.1105		
				2.0475		2.1525		
			8322	2.1890	2.200	2.2110		
				2.1450		2.2550		
8323	2.2885	2.300	2.3115					
	2.2425		2.3575					
8324	2.3880	2.400	2.4120					
	2.3400		2.4600					
8325	2.4875	2.500	2.5125					
	2.4375		2.5625					
8326	2.5870	2.600	2.6130					
	2.5350		2.6650					
8327	2.6865	2.700	2.7135					
	2.6325		2.7675					
8328	2.7860	2.800	2.8140					
	2.7300		2.8700					
8329	2.8855	2.900	2.9145					
	2.8275		2.9725					
8330	2.9850	3.000	3.0150					
	2.9250		3.0750					

**Electrical Characteristics** (Except where noted otherwise Ta=25°C)

**PST83XX**

Item	Symbol	Measurement conditions	Rank	Min.	Typ.	Max.	Units	Circuit
Reset threshold	V <sub>TH</sub>	Ta=+25°C Ta=-40~+85°C	8331	3.0845	3.1000	3.1155	V	(2)
				3.0225		3.1775		
			8332	3.1840	3.2000	3.2160		
				3.1200		3.2800		
			8333	3.2835	3.3000	3.3165		
				3.2175		3.3825		
			8334	3.3830	3.4000	3.4170		
				3.3150		3.4850		
			8335	3.4825	3.5000	3.5175		
				3.4125		3.5875		
			8336	3.5820	3.6000	3.6180		
				3.5100		3.6900		
			8337	3.6815	3.7000	3.7185		
				3.6075		3.7925		
			8338	3.7810	3.8000	3.8190		
				3.7050		3.8950		
			8339	3.8805	3.9000	3.9195		
				3.8025		3.9975		
			8340	3.9800	4.0000	4.0200		
				3.9000		4.1000		
			8341	4.0795	4.1000	4.1205		
				3.9975		4.2025		
			8342	4.1790	4.2000	4.2210		
				4.0950		4.3050		
			8343	4.2785	4.3000	4.3215		
				4.1925		4.4075		
			8344	4.3780	4.4000	4.4220		
				4.2900		4.5100		
			8345	4.4775	4.5000	4.5225		
				4.3875		4.6125		
			8346	4.5770	4.6000	4.6230		
				4.4850		4.7150		
			8347	4.6765	4.7000	4.7235		
4.5825		4.8175						
8348	4.7760	4.8000	4.8240					
	4.6800		4.9200					
8349	4.8755	4.9000	4.9245					
	4.7775		5.0225					
8350	4.9750	5.0000	5.0250					
	4.8750		5.1250					
8351	5.0745	5.1000	5.1255					
	4.9725		5.2275					
8352	5.1740	5.2000	5.2260					
	5.0700		5.3300					
8353	5.2735	5.3000	5.3265					
	5.1675		5.4325					

**Electrical Characteristics** (Except where noted otherwise Ta=25°C)

■ PST83XX

Item	Symbol	Measurement conditions	Rank	Min.	Typ.	Max.	Units	Circuit
Reset threshold	V <sub>TH</sub>	Ta=+25°C Ta=-40~+85°C	8354	5.3730	5.4000	5.4270	V	(2)
				5.2650		5.5350		
			8355	5.4725	5.5000	5.5275		
				5.3625		5.6375		
			8356	5.5720	5.6000	5.6280		
				5.4600		5.7400		
			8357	5.6715	5.7000	5.7285		
				5.5575		5.8425		
			8358	5.7710	5.8000	5.8290		
				5.6550		5.9450		
			8359	5.8705	5.9000	5.9295		
				5.7525		6.0475		
			8360	5.9700	6.0000	6.0300		
				5.8500		6.1500		
Reset threshold hysteresis	ΔV <sub>TH</sub>	V <sub>DD</sub> =0V → V <sub>TH</sub> +1V → 0V	8308	0.024	0.040	0.064	V	(2)
			8309	0.027	0.045	0.072		
			8310	0.030	0.050	0.080		
			8311	0.033	0.055	0.088		
			8312	0.036	0.060	0.096		
			8313	0.039	0.065	0.104		
			8314	0.042	0.070	0.112		
			8315	0.045	0.075	0.120		
			8316	0.048	0.080	0.128		
			8317	0.051	0.085	0.136		
			8318	0.054	0.090	0.144		
			8319	0.057	0.095	0.152		
			8320	0.060	0.100	0.160		
			8321	0.063	0.105	0.168		
			8322	0.066	0.110	0.176		
			8323	0.069	0.115	0.184		
			8324	0.072	0.120	0.192		
			8325	0.075	0.125	0.200		
			8326	0.078	0.130	0.208		
			8327	0.081	0.135	0.216		
			8328	0.084	0.140	0.224		
			8329	0.087	0.145	0.232		
			8330	0.090	0.150	0.240		
			8331	0.093	0.155	0.248		
			8332	0.096	0.160	0.256		
			8333	0.099	0.165	0.264		
8334	0.102	0.170	0.272					
8335	0.105	0.175	0.280					
8336	0.108	0.180	0.288					
8337	0.111	0.185	0.296					
8338	0.114	0.190	0.304					
8339	0.117	0.195	0.312					
8340	0.120	0.200	0.320					

**Electrical Characteristics** (Except where noted otherwise Ta=25°C)

**PST83XX**

Item	Symbol	Measurement conditions	Rank	Min.	Typ.	Max.	Units	Circuit
Reset threshold hysteresis	$\Delta V_{TH}$	$V_{DD}=0V \rightarrow V_{TH}+1V \rightarrow 0V$	8341	0.123	0.205	0.328	V	(2)
			8342	0.126	0.210	0.336		
			8343	0.129	0.215	0.344		
			8344	0.132	0.220	0.352		
			8345	0.135	0.225	0.360		
			8346	0.138	0.230	0.368		
			8347	0.141	0.235	0.376		
			8348	0.144	0.240	0.384		
			8349	0.147	0.245	0.392		
			8350	0.150	0.250	0.400		
			8351	0.153	0.255	0.408		
			8352	0.156	0.260	0.416		
			8353	0.159	0.265	0.424		
			8354	0.162	0.270	0.432		
			8355	0.165	0.275	0.440		
			8356	0.168	0.280	0.448		
8357	0.171	0.285	0.456					
8358	0.174	0.290	0.464					
8359	0.177	0.295	0.472					
8360	0.180	0.300	0.480					
Supply current	$I_{DD}$	$V_{DD}=V_{TH}+1V$	8308 ~ 8360		0.35	1.0	$\mu A$	(1)
Reset threshold temp. coefficient	$\Delta V_{TH}/^{\circ}C$	Ta=-40~+85°C	8308 ~ 8360		±100		ppm/°C	(2)
"L" transfer delay time	$t_{PHL}$	$V_{DD}=V_{TH}+0.4V \rightarrow V_{TH}-0.4V$ (note)	8308 ~ 8360	2	15	100	$\mu s$	(7)
"H" transfer delay time	$t_{PLH}$	$V_{DD}=V_{TH}-0.4V \rightarrow V_{TH}+0.4V$ (note)	8308 ~ 8360	2	15	100	$\mu s$	(7)
"L" output current	$I_{OL1}$	$V_{DD}=0.7V, V_{DS}=0.05V$	8308 ~ 8360	0.01	0.10		mA	(3)
	$I_{OL2}$	$V_{DD}=1.2V, V_{DS}=0.5V$ $V_{TH} \geq 1.3V$	8313 ~ 8360	0.23	2.00			
	$I_{OL3}$	$V_{DD}=2.4V, V_{DS}=0.5V$ $V_{TH} \geq 2.5V$	8325 ~ 8360	1.60	8.00			
	$I_{OL4}$	$V_{DD}=3.6V, V_{DS}=0.5V$ $V_{TH} \geq 3.7V$	8337 ~ 8360	3.20	12.0			
"H" output current	$I_{OH1}$	$V_{DD}=4.8V, V_{DS}=0.5V$ $V_{TH} \leq 4.7V$	8308 ~ 8347	0.36	0.62		mA	(4)
	$I_{OH2}$	$V_{DD}=6.1V, V_{DS}=0.5V$	8308 ~ 8360	0.46	0.75			

note : This parameter is guaranteed by design.

**Electrical Characteristics** (Except where noted otherwise Ta=25°C)

**PST84XX**

Item	Symbol	Measurement conditions	Rank	Min.	Typ.	Max.	Units	Circuit
Reset threshold	V <sub>TH</sub>	Ta=+25°C Ta=-40~+85°C	8408	0.7936	0.800	0.8064	V	(2)
				0.7800		0.8200		
			8409	0.8928	0.900	0.9072		
				0.8775		0.9225		
			8410	0.9920	1.000	1.0080		
				0.9750		1.0250		
			8411	1.0912	1.100	1.1088		
				1.0725		1.1275		
			8412	1.1904	1.200	1.2096		
				1.1700		1.2300		
			8413	1.2896	1.300	1.3104		
				1.2675		1.3325		
			8414	1.3888	1.400	1.4112		
				1.3650		1.4350		
			8415	1.4880	1.500	1.5120		
				1.4625		1.5375		
			8416	1.5872	1.600	1.6128		
				1.5600		1.6400		
			8417	1.6864	1.700	1.7136		
				1.6575		1.7425		
			8418	1.7856	1.800	1.8144		
				1.7550		1.8450		
			8419	1.8848	1.900	1.9152		
				1.8525		1.9475		
			8420	1.9900	2.000	2.0100		
				1.9500		2.0500		
			8421	2.0895	2.100	2.1105		
				2.0475		2.1525		
			8422	2.1890	2.200	2.2110		
				2.1450		2.2550		
			8423	2.2885	2.300	2.3115		
				2.2425		2.3575		
			8424	2.3880	2.400	2.4120		
				2.3400		2.4600		
			8425	2.4875	2.500	2.5125		
				2.4375		2.5625		
			8426	2.5870	2.600	2.6130		
				2.5350		2.6650		
			8427	2.6865	2.700	2.7135		
				2.6325		2.7675		
8428	2.7860	2.800	2.8140					
	2.7300		2.8700					
8429	2.8855	2.900	2.9145					
	2.8275		2.9725					
8430	2.9850	3.000	3.0150					
	2.9250		3.0750					

**Electrical Characteristics** (Except where noted otherwise Ta=25°C)

■ PST84XX

Item	Symbol	Measurement conditions	Rank	Min.	Typ.	Max.	Units	Circuit
Reset threshold	V <sub>TH</sub>	Ta=+25°C Ta=-40~+85°C	8431	3.0845	3.1000	3.1155	V	(2)
				3.0225		3.1775		
			8432	3.1840	3.2000	3.2160		
				3.1200		3.2800		
			8433	3.2835	3.3000	3.3165		
				3.2175		3.3825		
			8434	3.3830	3.4000	3.4170		
				3.3150		3.4850		
			8435	3.4825	3.5000	3.5175		
				3.4125		3.5875		
			8436	3.5820	3.6000	3.6180		
				3.5100		3.6900		
			8437	3.6815	3.7000	3.7185		
				3.6075		3.7925		
			8438	3.7810	3.8000	3.8190		
				3.7050		3.8950		
			8439	3.8805	3.9000	3.9195		
				3.8025		3.9975		
			8440	3.9800	4.0000	4.0200		
				3.9000		4.1000		
			8441	4.0795	4.1000	4.1205		
				3.9975		4.2025		
			8442	4.1790	4.2000	4.2210		
				4.0950		4.3050		
			8443	4.2785	4.3000	4.3215		
				4.1925		4.4075		
			8444	4.3780	4.4000	4.4220		
				4.2900		4.5100		
			8445	4.4775	4.5000	4.5225		
				4.3875		4.6125		
			8446	4.5770	4.6000	4.6230		
				4.4850		4.7150		
			8447	4.6765	4.7000	4.7235		
				4.5825		4.8175		
			8448	4.7760	4.8000	4.8240		
				4.6800		4.9200		
			8449	4.8755	4.9000	4.9245		
				4.7775		5.0225		
			8450	4.9750	5.0000	5.0250		
				4.8750		5.1250		
8451	5.0745	5.1000	5.1255					
	4.9725		5.2275					
8452	5.1740	5.2000	5.2260					
	5.0700		5.3300					
8453	5.2735	5.3000	5.3265					
	5.1675		5.4325					

**Electrical Characteristics** (Except where noted otherwise Ta=25°C)

■ PST84XX

Item	Symbol	Measurement conditions	Rank	Min.	Typ.	Max.	Units	Circuit
Reset threshold	V <sub>TH</sub>	Ta=+25°C Ta=-40~+85°C	8454	5.3730	5.4000	5.4270	V	(2)
				5.2650		5.5350		
			8455	5.4725	5.5000	5.5275		
				5.3625		5.6375		
			8456	5.5720	5.6000	5.6280		
				5.4600		5.7400		
			8457	5.6715	5.7000	5.7285		
				5.5575		5.8425		
			8458	5.7710	5.8000	5.8290		
				5.6550		5.9450		
			8459	5.8705	5.9000	5.9295		
				5.7525		6.0475		
			8460	5.9700	6.0000	6.0300		
				5.8500		6.1500		
Reset threshold hysteresis	ΔV <sub>TH</sub>	V <sub>DD</sub> =0V → V <sub>TH</sub> +1V → 0V	8408	0.024	0.040	0.064	V	(2)
			8409	0.027	0.045	0.072		
			8410	0.030	0.050	0.080		
			8411	0.033	0.055	0.088		
			8412	0.036	0.060	0.096		
			8413	0.039	0.065	0.104		
			8414	0.042	0.070	0.112		
			8415	0.045	0.075	0.120		
			8416	0.048	0.080	0.128		
			8417	0.051	0.085	0.136		
			8418	0.054	0.090	0.144		
			8419	0.057	0.095	0.152		
			8420	0.060	0.100	0.160		
			8421	0.063	0.105	0.168		
			8422	0.066	0.110	0.176		
			8423	0.069	0.115	0.184		
			8424	0.072	0.120	0.192		
			8425	0.075	0.125	0.200		
			8426	0.078	0.130	0.208		
			8427	0.081	0.135	0.216		
			8428	0.084	0.140	0.224		
			8429	0.087	0.145	0.232		
			8430	0.090	0.150	0.240		
			8431	0.093	0.155	0.248		
8432	0.096	0.160	0.256					
8433	0.099	0.165	0.264					
8434	0.102	0.170	0.272					
8435	0.105	0.175	0.280					
8436	0.108	0.180	0.288					
8437	0.111	0.185	0.296					
8438	0.114	0.190	0.304					
8439	0.117	0.195	0.312					
8440	0.120	0.200	0.320					

**Electrical Characteristics** (Except where noted otherwise Ta=25°C)

**PST84XX**

Item	Symbol	Measurement conditions	Rank	Min.	Typ.	Max.	Units	Circuit
Reset threshold hysteresis	$\Delta V_{TH}$	$V_{DD}=0V \rightarrow V_{TH}+1V \rightarrow 0V$	8441	0.123	0.205	0.328	V	(2)
			8442	0.126	0.210	0.336		
			8443	0.129	0.215	0.344		
			8444	0.132	0.220	0.352		
			8445	0.135	0.225	0.360		
			8446	0.138	0.230	0.368		
			8447	0.141	0.235	0.376		
			8448	0.144	0.240	0.384		
			8449	0.147	0.245	0.392		
			8450	0.150	0.250	0.400		
			8451	0.153	0.255	0.408		
			8452	0.156	0.260	0.416		
			8453	0.159	0.265	0.424		
			8454	0.162	0.270	0.432		
			8455	0.165	0.275	0.440		
			8456	0.168	0.280	0.448		
			Supply current	$I_{DD}$	$V_{DD}=V_{TH}+1V$	8408 ~ 8460		
Reset threshold temp. coefficient	$\Delta V_{TH}/^{\circ}C$	Ta=-40~+85°C	8408 ~ 8460		$\pm 100$		ppm/°C	(2)
"L" transfer delay time	$t_{PHL}$	$V_{DD}=V_{TH}+0.4V \rightarrow V_{TH}-0.4V$ (note)	8408 ~ 8460	2	15	100	$\mu s$	(6)
"H" transfer delay time	$t_{PLH}$	$V_{DD}=V_{TH}-0.4V \rightarrow V_{TH}+0.4V$ (note)	8408 ~ 8460	2	15	100	$\mu s$	(6)
"L" output current	$I_{OL1}$	$V_{DD}=0.7V, V_{DS}=0.05V$	8408 ~ 8460	0.01	0.10		mA	(3)
	$I_{OL2}$	$V_{DD}=1.2V, V_{DS}=0.5V$ $V_{TH} \geq 1.3V$	8413 ~ 8460	0.23	2.00			
	$I_{OL3}$	$V_{DD}=2.4V, V_{DS}=0.5V$ $V_{TH} \geq 2.5V$	8425 ~ 8460	1.60	8.00			
	$I_{OL4}$	$V_{DD}=3.6V, V_{DS}=0.5V$ $V_{TH} \geq 3.7V$	8437 ~ 8460	3.20	12.0			
Output leakage current	$I_{leak}$	$V_{DD}=10V, OUT=10V$	8408 ~ 8460			0.1	$\mu A$	(3)

note : This parameter is guaranteed by design.

**Electrical Characteristics 2** (Except where noted otherwise Ta=25°C)

**PST83XX**

Item	Symbol	Test Condition	Rank	Min.	Typ.	Max.	Units	Circuit
Cd pin resistance	R <sub>D</sub>		8308 ~ 8360	9	10	11	MΩ	(6)
Cd pin threshold voltage	V <sub>TCD</sub>	V <sub>DD</sub> =V <sub>TH</sub> × 1.1V	8308 ~ 8360	V <sub>DD</sub> × 0.3	V <sub>DD</sub> × 0.5	V <sub>DD</sub> × 0.7	V	(5)
Cd pin output current1	I <sub>CD1</sub>	V <sub>DS</sub> =0.1V V <sub>DD</sub> =0.7V	8308 ~ 8360	2.0	30.0		μA	(6)
Cd pin output current2	I <sub>CD2</sub>	V <sub>DS</sub> =0.5V V <sub>DD</sub> =0.8V(Rank08~10) V <sub>DD</sub> =1.0V(Rank11~15) V <sub>DD</sub> =1.5V(Rank16~60)	8308 ~ 8310	10	100		μA	(6)
			8311 ~ 8315	50	200			
			8316 ~ 8360	200	800			

**PST84XX**

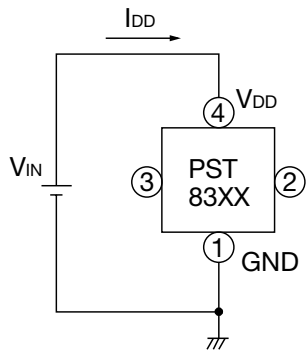
Item	Symbol	Test Condition	Rank	Min.	Typ.	Max.	Units	Circuit
Cd pin resistance	R <sub>D</sub>		8408 ~ 8460	9	10	11	MΩ	(5)
Cd pin threshold voltage	V <sub>TCD</sub>	V <sub>DD</sub> =V <sub>TH</sub> × 1.1V	8408 ~ 8460	V <sub>DD</sub> × 0.3	V <sub>DD</sub> × 0.5	V <sub>DD</sub> × 0.7	V	(4)
Cd pin output current1	I <sub>CD1</sub>	V <sub>DS</sub> =0.1V V <sub>DD</sub> =0.7V	8408 ~ 8460	2.0	30.0		μA	(5)
Cd pin output current2	I <sub>CD2</sub>	V <sub>DS</sub> =0.5V V <sub>DD</sub> =0.8V(Rank08~10) V <sub>DD</sub> =1.0V(Rank11~15) V <sub>DD</sub> =1.5V(Rank16~60)	8408 ~ 8410	10	100		μA	(5)
			8411 ~ 8415	50	200			
			8416 ~ 8460	200	800			

note : This device is tested at Ta=25°C, over temperature limits guaranteed by design only.

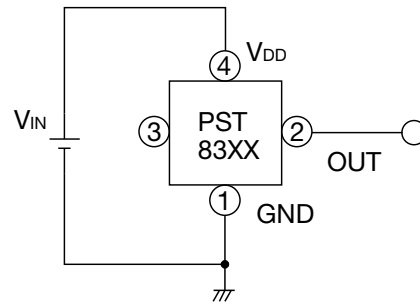
Measuring Circuit

PST83XX \*①-④ in the circuit diagram is pin number for the SSON-4 package.

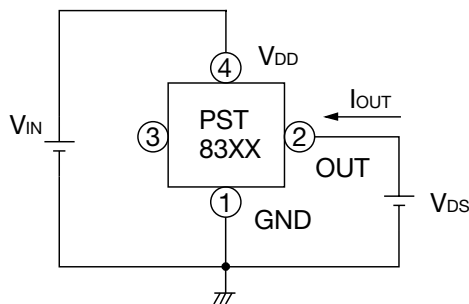
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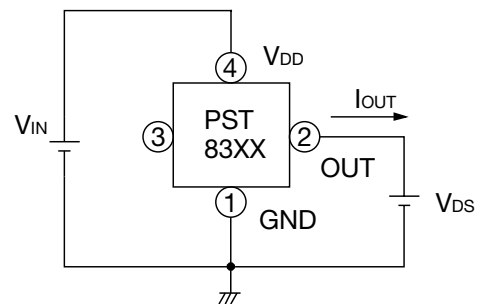
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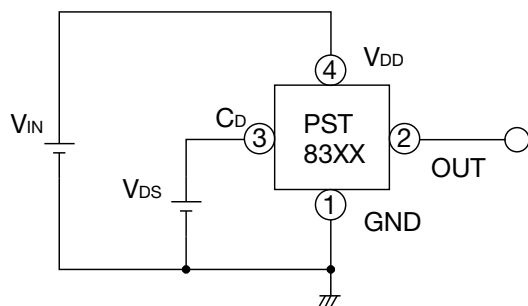
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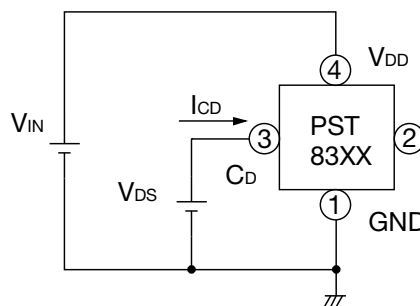
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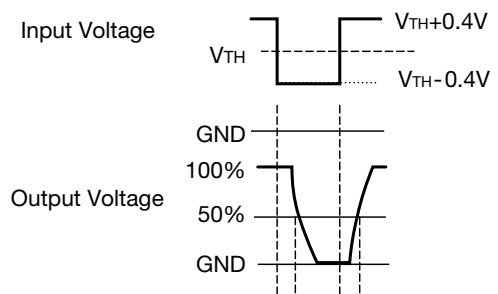
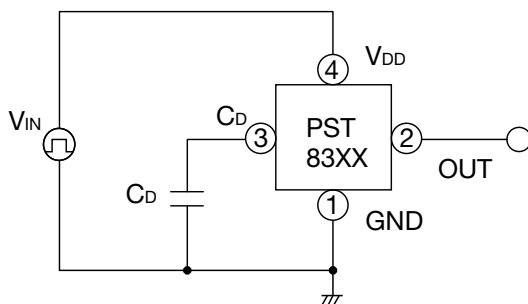
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(6)

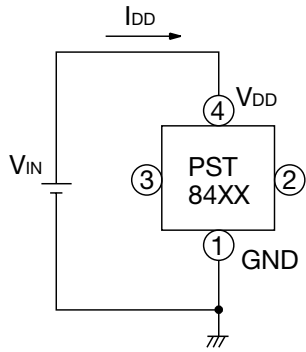


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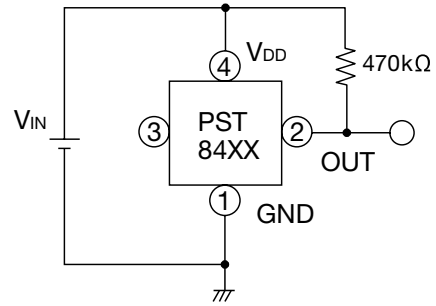


■ PST84XX \*①-④ in the circuit diagram is pin number for the SSON-4 package.

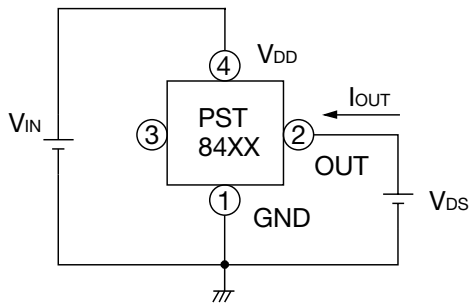
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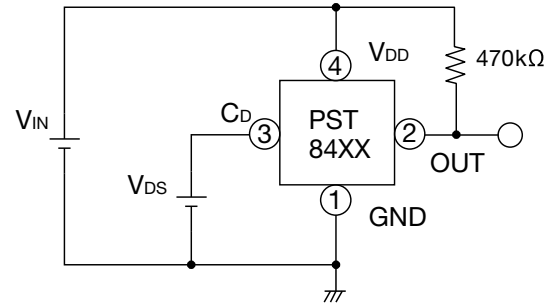
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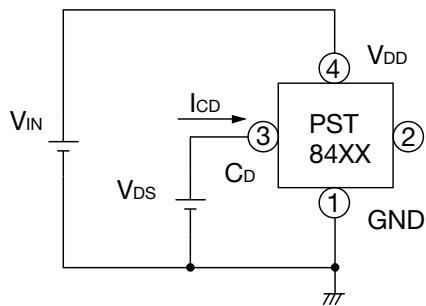
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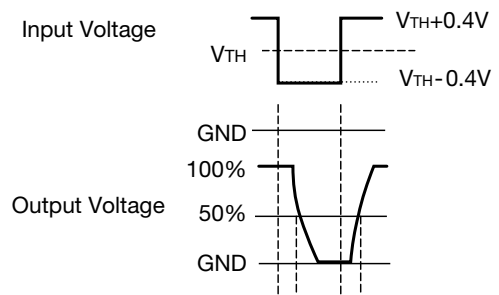
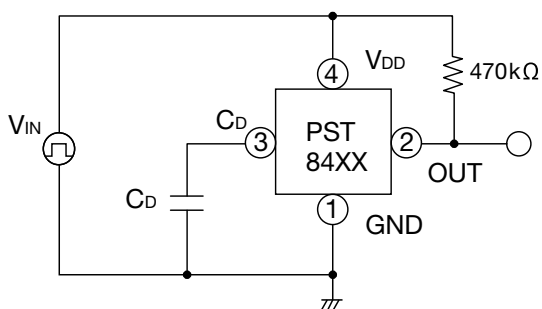
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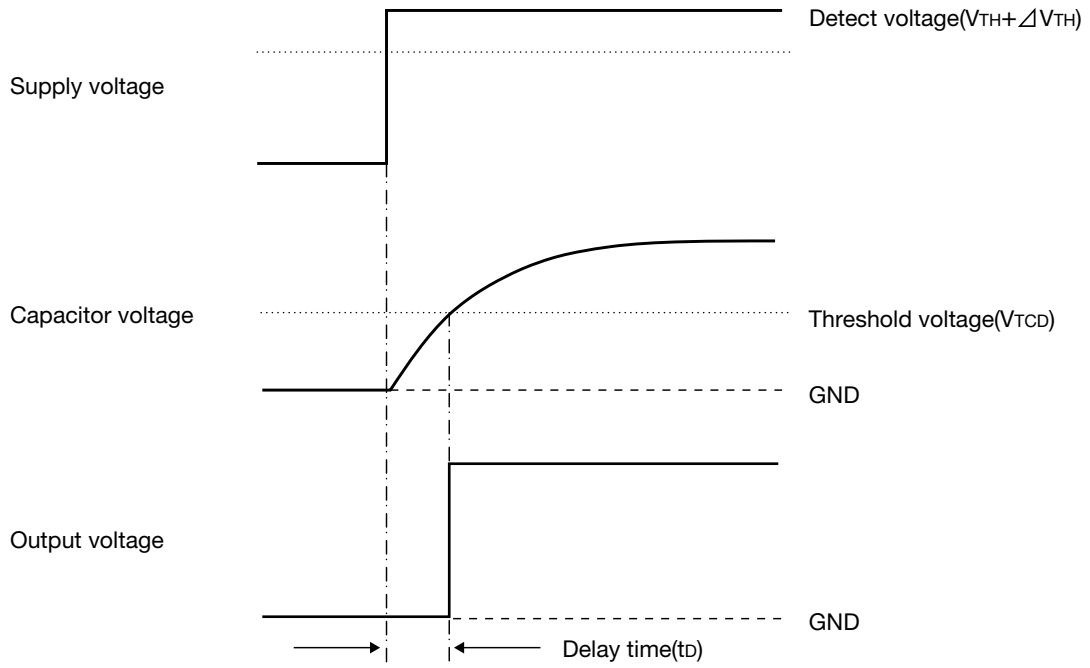
(5)



(6)



Timing Chart

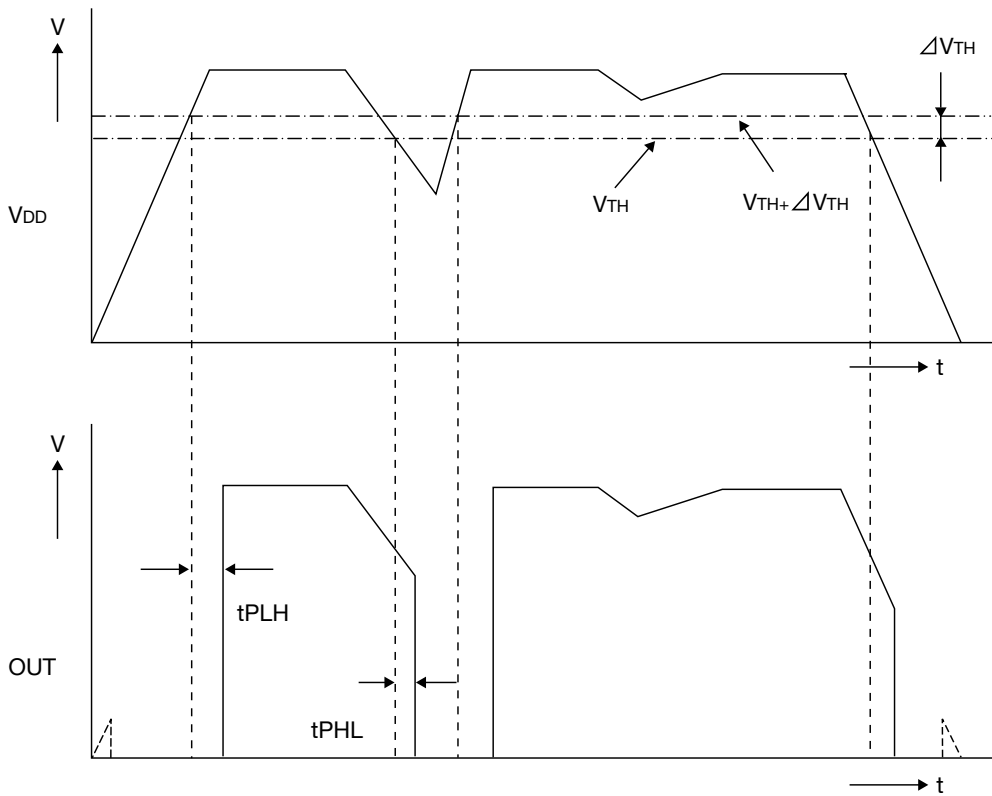


Delay time ( $t_D$ )

$$t_D \approx 0.69 \times R_D \times C_D (F) (s)$$

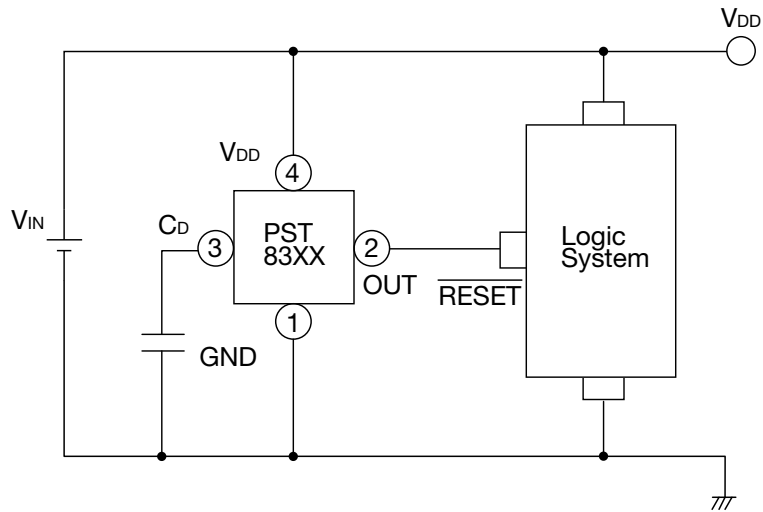
$R_D$  :  $C_D$  pin resistance

$C_D$  : Capacitor

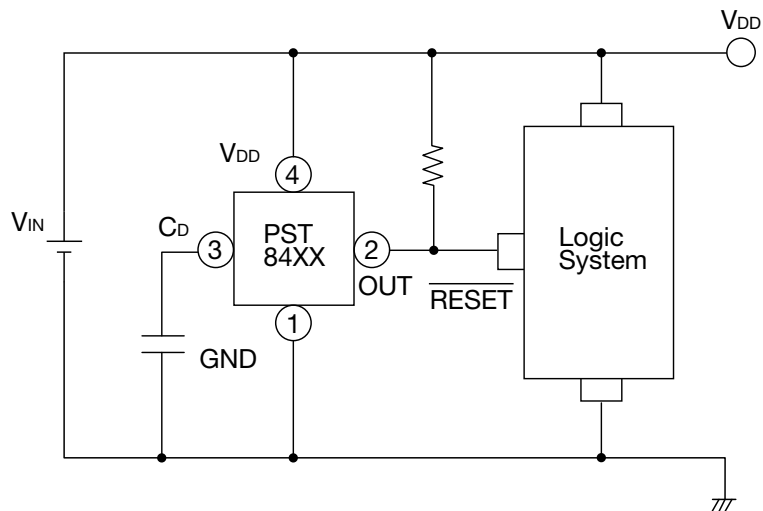


Application Circuits

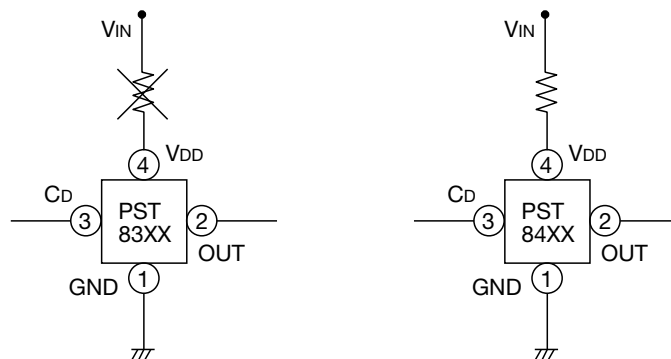
■ PST83XX \*①-④ in the circuit diagram is pin number for the SSON-4 package.



■ PST84XX \*①-④ in the circuit diagram is pin number for the SSON-4 package.



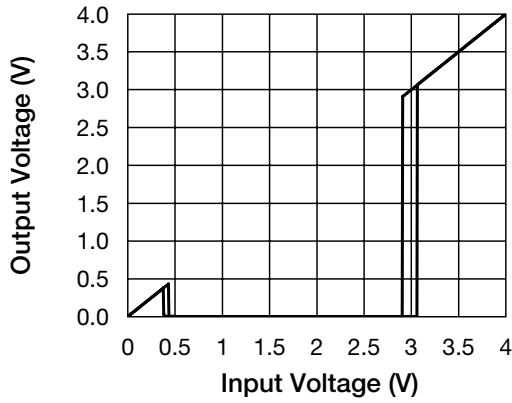
- We shall not be liable for any trouble or damage caused by using this circuit.
- In the event a problem which may affect industrial property or any other rights of us or a third party is encountered during the use of information described in these circuit, Mitsumi Electric Co., Ltd. shall not be liable for any such problem, nor grant a license therefore.



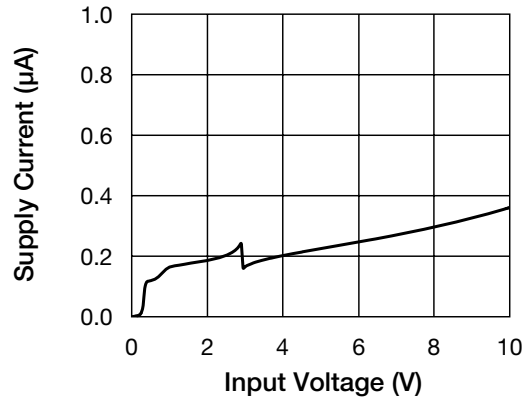
- Please note that there is any possibility of circuit oscillation when resistance put in the line V<sub>IN</sub>.
- Please do not put resistance for PST83XX.
- Recommend 15kΩ or less for PST84XX.

**Characteristics** (Typical Performance Characteristics 2.9V)

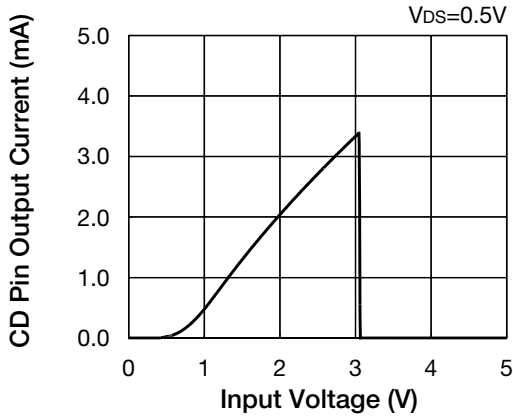
**Detecting Voltage**



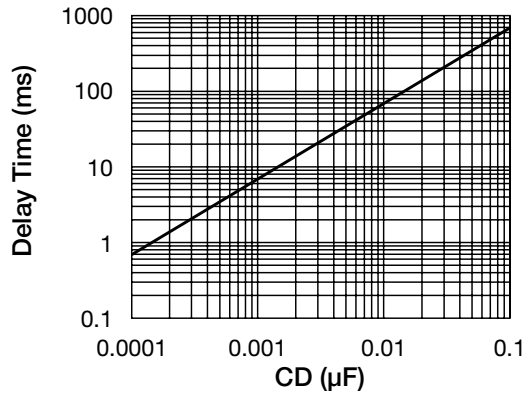
**Supply Current**



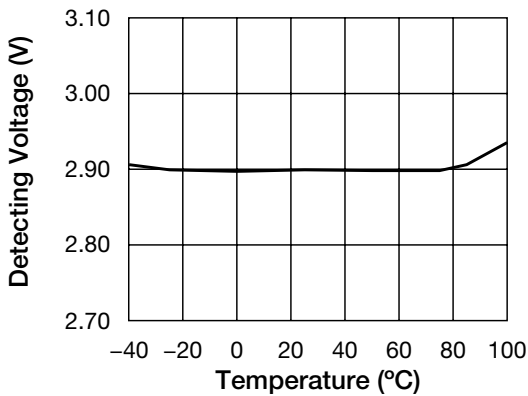
**CD Pin Output Current**



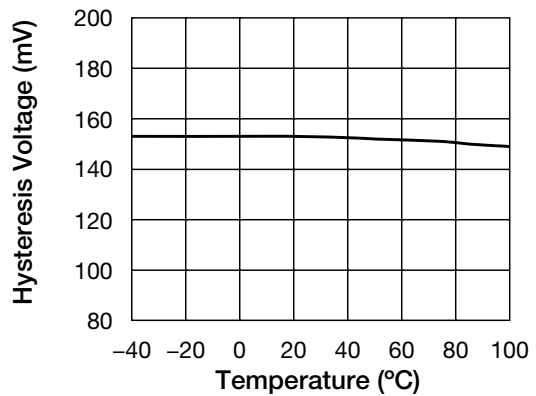
**Delay Time - CD**



**Detecting Voltage - Temperature**

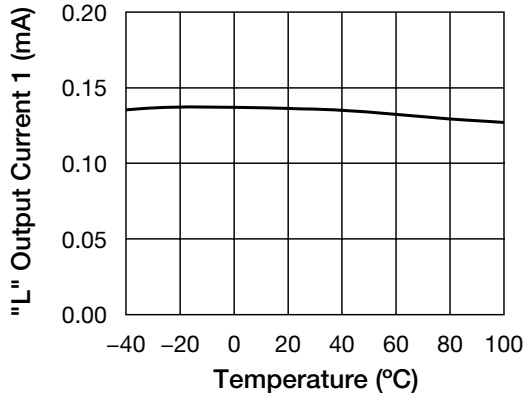


**Hysteresis Voltage - Temperature**

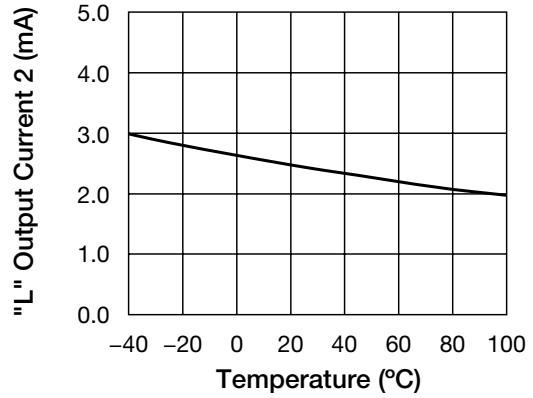


note : these are typical characteristics

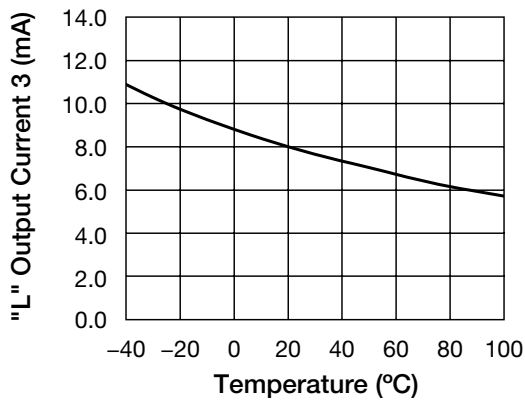
■ "L" Output Current 1 - Temperature



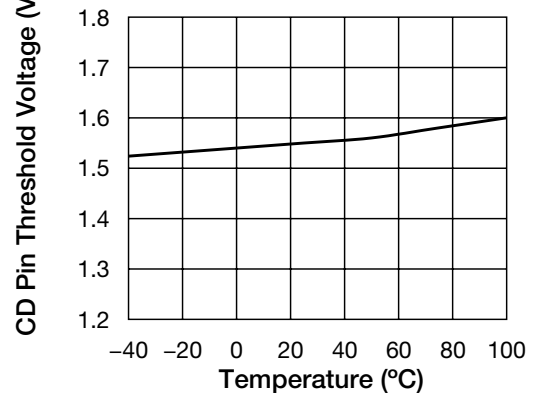
■ "L" Output Current 2 - Temperature



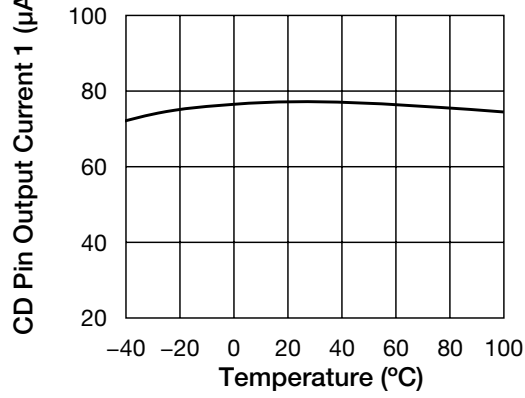
■ "L" Output Current 3 - Temperature



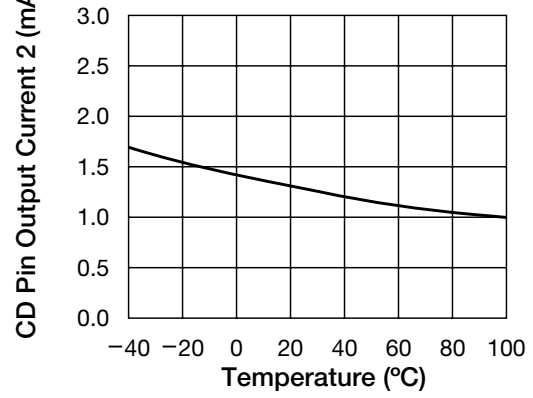
■ CD Pin Threshold Voltage - Temperature



■ CD Pin Output Current 1 - Temperature

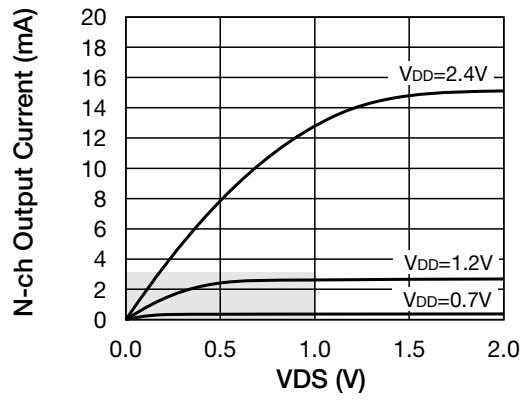


■ CD Pin Output Current 2 - Temperature

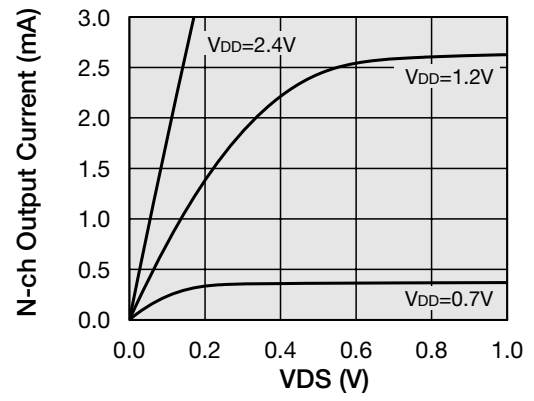


note : these are typical characteristics

■ N-ch Output Current



➔  
magnify



note : these are typical characteristics