

One-cell lithium-ion/lithium-polymer battery protection IC MM3280 Series

Outline

MM3280 series are protection IC using high voltage CMOS process for overcharge, overdischarge and overcurrent protection of the rechargeable Lithium-ion or Lithium-polymer battery. The overcharge, overdischarge, discharging overcurrent, short, charging overcurrent (optional), and over voltage charger (optional) protection of the rechargeable one-cell Lithium-ion or Lithium-polymer battery can be detected. Each of these IC composed of four voltage detectors, short detection circuit, reference voltage sources, oscillator, counter circuit and logical circuits.

Features

(Unless otherwise specified, $T_{opr}=+25^{\circ}C$)

1. Range and accuracy of detection/release voltage

| | | |
|---|---------------------------------|---|
| ● Overcharge detection voltage | 3.6V to 5.0V, 5mV steps | Accuracy $\pm 20mV$ Accuracy $\pm 25mV$ ($T_{opr}=-5$ to $+60^{\circ}C$) |
| ● Overcharge release voltage | 3.6V to 4.5V, 50mV steps | Accuracy $\pm 30mV$ |
| ● Overdischarge detection voltage | 2.0V to 3.0V, 50mV steps | Accuracy $\pm 35mV$ |
| ● Overdischarge release voltage | 2.0V to 3.5V, 50mV steps | Accuracy $\pm 100mV$ |
| ● Discharging overcurrent detection voltage | +50mV to +300mV, 5mV steps | Accuracy $\pm 10mV$ |
| ● Charging overcurrent detection voltage * | -300mV to -50mV, 5mV steps | Accuracy $\pm 20mV$ |
| ● Short detection voltage | Selection from 0.7V, 0.8V, 0.9V | Accuracy $\pm 100mV$ |
| ● Over voltage charger detection voltage * | VDD-8.0V fixed | Accuracy $\pm 2.0V$ |
| ● Over voltage charger release voltage * | VDD-7.3V fixed | Accuracy $\pm 2.0V$ |

2. Range of detection delay time

| | |
|--|---|
| ● Overcharge detection delay time | Selection from 0.25s, 1.0s, 1.2s, 4.5s |
| ● Overdischarge detection delay time | Selection from 20ms, 24ms, 96ms, 125ms, 128ms, 144ms |
| ● Discharging overcurrent detection delay time | Selection from 8ms, 12ms, 16ms, 20ms, 24ms, 48ms, 96ms, 160ms |
| ● Charging overcurrent detection delay time | Selection from 4ms, 6ms, 8ms, 10ms, 12ms, 16ms, 96ms |
| ● Short detection delay time | Selection from 200 μ s, 300 μ s, 400 μ s |

3. 0V battery charge function

Selection from "Prohibition" or "Permission"

4. The overcharge detection delay timer reset time function (function for the pulse charge) is provided. *

5. Low current consumption

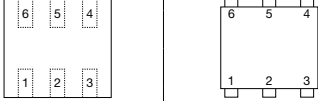
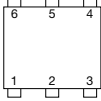
| | |
|-----------------|---|
| ● Normal mode | Typ. 3.0 μ A, Max. 6.0 μ A |
| ● Stand-by mode | Max. 0.1 μ A (For "Charger connection release" the overdischarge release condition.) Max. 0.5 μ A (For "Voltage release" the overdischarge release condition.) |

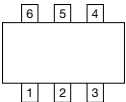
6. Absolute maximum ratings

| | |
|-------------------------|-------------------------------------|
| ● VDD pin | VSS-0.3V to +12V |
| ● COUT pin and V- pin | VDD-28V to VDD+0.3V |
| ● DOUT pin | VSS-0.3V to VDD+0.3V |
| ● Storage temperature | -55 $^{\circ}C$ to +125 $^{\circ}C$ |
| ● Operation temperature | -40 $^{\circ}C$ to +85 $^{\circ}C$ |

*Optional function

Pin Assignment

| Top view | | Pin No. | | | | Symbol | Function |
|---|---|---------|------|------|------|--------|---|
| SSON-6E/6J/6M/6K | SON-6C | Ver1 | Ver2 | Ver3 | Ver4 | | |
|  |  | 1 | 6 | 2 | 6 | V- | Input terminal connected to charger negative voltage. |
| | | 2 | 1 | 1 | 2 | COUT | Output of overcharge detection. |
| | | 3 | 3 | 3 | 3 | DOUT | Output of overdischarge detection. |
| | | 4 | 4 | 4 | 4 | VSS | VSS terminal. Connected to ground. |
| | | 5 | 5 | 5 | 5 | VDD | VDD terminal. Connected to IC substrate. |
| | | 6 | 2 | 6 | 1 | DS/NC | Delay shorten terminal. |

| Top view | Pin No. | Symbol | Function |
|---|---------|--------|---|
| SOT-26A/26B | | | |
|  | 1 | DOUT | Output of overdischarge detection. |
| | 2 | V- | Input terminal connected to charger negative voltage. |
| | 3 | COUT | Output of overcharge detection. |
| | 4 | DS | Delay shorten terminal. |
| | 5 | VDD | VDD terminal. Connected to IC substrate. |
| | 6 | VSS | VSS terminal. Connected to ground. |

Selection Guide

(SOT26A/SOT-26B, SSON-6E, SSON-6J, SSON-6K ... 3,000pcs/Reel)(SON-6C ... 5,000pcs/Reel)

| duct name | Package | Pin No. | Model No. | Optional function | | | | Detection / Release voltage | | | | | | | Detection delay time | | | | |
|--------------|----------|---------|-----------|----------------------------|--------------------------------|--------------------------------|---|------------------------------|----------------------------|---------------------------------|-------------------------------|---|--|-------------------------|---------------------------------|------------------------------------|--|---|----------------------------|
| | | | | 0V battery charge function | Charging overcurrent detection | Over voltage charger detection | Overcharge detection delay timer reset time | Overcharge detection voltage | Overcharge release voltage | Overdischarge detection voltage | Overdischarge release voltage | Discharging overcurrent detection voltage | Charging overcurrent detection voltage | Short detection voltage | Overcharge detection delay time | Overdischarge detection delay time | Discharging overcurrent detection delay time | Charging overcurrent detection delay time | Short detection delay time |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | μV | V | V | V | V | V | V | s | ms | ms | ms | ms |
| MM3280A01RRE | SSON6J | 1 | A1 | ○ | ○ | ○ | ○ | 4.300 | 4.100 | 2.300 | 2.300 | 0.105 | -0.100 | 0.9 | 4.500 | 125 | 12 | 16 | 400 |
| MM3280A01YRE | SON6C | 1 | A1 | ○ | ○ | ○ | ○ | 4.300 | 4.100 | 2.300 | 2.300 | 0.105 | -0.100 | 0.9 | 4.500 | 125 | 12 | 16 | 400 |
| MM3280B04RRE | SSON6J | 2 | B4 | × | ○ | ○ | ○ | 4.445 | 4.245 | 2.300 | 2.300 | 0.060 | -0.070 | 0.9 | 4.500 | 96 | 12 | 8 | 400 |
| MM3280B05RRE | SSON6J | 2 | B5 | × | ○ | ○ | ○ | 4.445 | 4.245 | 2.300 | 2.300 | 0.050 | -0.070 | 0.3 | 4.500 | 96 | 160 | 8 | 400 |
| MM3280B07RRE | SSON6J | 2 | BA | × | ○ | ○ | ○ | 4.445 | 4.245 | 2.300 | 2.300 | 0.055 | -0.060 | 0.3 | 1.000 | 96 | 12 | 10 | 300 |
| MM3280C01RRE | SSON6K | 3 | C1 | ○ | ○ | ○ | × | 4.225 | 4.025 | 2.800 | 2.800 | 0.150 | -0.150 | 0.9 | 1.000 | 96 | 12 | 6 | 400 |
| MM3280C01NRH | SOT26A/B | 3 | 81C | ○ | ○ | ○ | × | 4.225 | 4.025 | 2.800 | 2.800 | 0.150 | -0.150 | 0.9 | 1.000 | 96 | 12 | 6 | 400 |
| MM3280C04RRE | SSON6K | 3 | C4 | ○ | ○ | ○ | × | 4.275 | 4.175 | 2.300 | 2.300 | 0.150 | -0.150 | 0.9 | 1.000 | 96 | 12 | 6 | 400 |
| MM3280C05RRE | SSON6K | 3 | C5 | ○ | ○ | ○ | × | 4.375 | 4.275 | 2.300 | 2.300 | 0.200 | -0.150 | 0.9 | 1.000 | 96 | 12 | 6 | 400 |
| MM3280D01NRH | SOT25A | - | 80D | ○ | ○ | × | × | 4.275 | 4.075 | 2.800 | 3.100 | 0.100 | -0.100 | 0.9 | 0.250 | 144 | 16 | 8 | 400 |
| MM3280E01YRE | SON6C | 1 | E1 | ○ | ○ | × | × | 4.275 | 4.275 | 2.300 | 2.300 | 0.100 | -0.100 | 0.9 | 1.000 | 20 | 6 | 8 | 400 |
| MM3280EA1YRE | SON6C | 4 | GR | ○ | ○ | × | × | 4.275 | 4.075 | 2.500 | 2.900 | 0.130 | -0.130 | 0.7 | 1.024 | 96 | 12 | 8 | 300 |
| MM3280EA2RRE | SSON6J | 4 | 7R | ○ | ○ | × | × | 4.425 | 4.225 | 2.500 | 2.900 | 0.130 | -0.130 | 0.7 | 1.024 | 96 | 12 | 8 | 300 |
| MM3280EA3YRE | SON6C | 4 | GS | ○ | ○ | × | × | 4.415 | 4.215 | 2.500 | 2.900 | 0.100 | -0.100 | 0.3 | 1.024 | 96 | 12 | 8 | 300 |
| MM3280EA4YRE | SON6C | 4 | GV | ○ | ○ | × | × | 4.425 | 4.225 | 3.000 | 3.200 | 0.130 | -0.130 | 0.7 | 1.024 | 96 | 12 | 8 | 300 |
| MM3280EA5YRE | SON6C | 4 | GX | ○ | ○ | × | × | 4.425 | 4.225 | 2.800 | 3.000 | 0.130 | -0.130 | 0.7 | 1.024 | 96 | 12 | 8 | 300 |
| MM3280EA6YRE | SON6C | 4 | GY | ○ | ○ | × | × | 4.420 | 4.220 | 2.500 | 2.900 | 0.050 | -0.040 | 0.3 | 1.024 | 64 | 12 | 8 | 300 |
| MM3280EA9YRE | SON-6C | 4 | KC | ○ | ○ | × | × | 4.425 | 4.225 | 2.500 | 2.800 | 0.130 | -0.100 | 0.5 | 1.024 | 32 | 8 | 8 | 250 |
| MM3280EAAYRE | SON-6C | 4 | KH | ○ | ○ | × | × | 4.425 | 4.225 | 2.500 | 2.900 | 0.200 | -0.150 | 0.5 | 1.024 | 96 | 12 | 10 | 300 |
| MM3280EAFYRE | SON-6C | 4 | KP | ○ | ○ | × | × | 4.475 | 4.275 | 2.500 | 2.900 | 0.100 | -0.100 | 0.3 | 1.024 | 96 | 12 | 8 | 300 |
| MM3280EAGYRE | SON-6C | 4 | KR | ○ | ○ | × | × | 4.475 | 4.275 | 2.500 | 2.900 | 0.080 | -0.080 | 0.3 | 1.024 | 96 | 12 | 8 | 300 |
| MM3280EAHYRE | SON-6C | 4 | KS | ○ | ○ | × | × | 4.475 | 4.275 | 2.500 | 2.900 | 0.050 | -0.050 | 0.3 | 1.024 | 96 | 12 | 8 | 300 |
| MM3280EB1RRE | SSON6J | 4 | 7S | × | ○ | × | × | 4.425 | 4.225 | 2.500 | 2.900 | 0.130 | -0.130 | 0.7 | 1.024 | 96 | 12 | 8 | 300 |
| MM3280EB2YRE | SON6C | 4 | GT | × | ○ | × | × | 4.415 | 4.215 | 2.500 | 2.900 | 0.100 | -0.100 | 0.3 | 1.024 | 96 | 12 | 8 | 300 |
| MM3280EB3YRE | SON6C | 4 | GU | × | ○ | × | × | 4.450 | 4.250 | 2.500 | 2.900 | 0.100 | -0.100 | 0.3 | 1.024 | 96 | 12 | 8 | 300 |
| MM3280EB4YRE | SON6C | 4 | GZ | × | ○ | × | × | 4.420 | 4.220 | 2.500 | 2.900 | 0.050 | -0.040 | 0.3 | 1.024 | 64 | 12 | 8 | 300 |
| MM3280EB5YRE | SON6C | 4 | GP | × | ○ | × | × | 4.475 | 4.275 | 2.500 | 2.900 | 0.130 | -0.100 | 0.3 | 1.024 | 96 | 12 | 8 | 300 |
| MM3280EB6YRE | SON6C | 4 | GK | × | ○ | × | × | 4.475 | 4.275 | 2.500 | 2.900 | 0.150 | -0.125 | 0.4 | 1.024 | 64 | 8 | 8 | 250 |
| MM3280EG1RRE | SSON6J | 4 | 7T | × | ○ | × | × | 4.475 | 4.375 | 2.000 | 2.000 | 0.075 | -0.075 | 0.5 | 0.576 | 144 | 4.25 | 4 | 300 |
| MM3280F02RRE | SSON6J | 1 | F2 | ○ | × | ○ | × | 4.300 | 4.100 | 2.300 | 2.300 | 0.130 | - | 0.9 | 1.000 | 24 | 12 | - | 400 |
| MM3280G01RRE | SSON6J | 1 | G1 | × | × | ○ | × | 4.280 | 4.100 | 2.300 | 2.300 | 0.050 | - | 0.9 | 1.000 | 24 | 12 | - | 400 |
| MM3280G02RRE | SSON6J | 1 | G2 | × | × | ○ | × | 4.280 | 4.100 | 2.800 | 2.800 | 0.050 | - | 0.9 | 1.000 | 24 | 12 | - | 400 |
| MM3280H01NRH | SOT26A/B | - | 81H | ○ | × | ○ | × | 4.275 | 4.175 | 3.000 | 3.200 | 0.150 | - | 0.9 | 1.000 | 125 | 12 | - | 400 |
| MM3280H02NRH | SOT26A/B | - | 82H | ○ | × | ○ | × | 4.280 | 4.100 | 2.300 | 2.500 | 0.150 | - | 0.9 | 1.000 | 24 | 12 | - | 400 |
| MM3280H03NRH | SOT26A/B | - | 83H | ○ | × | ○ | × | 4.215 | 4.115 | 2.800 | 2.900 | 0.150 | - | 0.9 | 1.000 | 24 | 12 | - | 400 |
| MM3280H04NRH | SOT26A/B | - | 84H | ○ | × | ○ | × | 3.800 | 3.600 | 2.300 | 2.500 | 0.100 | - | 0.9 | 1.000 | 125 | 12 | - | 400 |
| MM3280I01NRH | SOT26A/B | - | 81I | ○ | × | ○ | × | 4.250 | 4.050 | 2.500 | 3.000 | 0.150 | - | 0.9 | 1.000 | 24 | 12 | - | 400 |
| MM3280I02NRH | SOT26A/B | - | 82I | ○ | × | ○ | × | 4.250 | 4.050 | 2.500 | 3.000 | 0.100 | - | 0.9 | 1.000 | 24 | 12 | - | 400 |
| MM3280J01NRH | SOT26A/B | - | 81J | ○ | ○ | × | × | 4.250 | 4.050 | 2.500 | 3.000 | 0.200 | -0.100 | 0.8 | 1.000 | 20 | 12 | 8 | 300 |
| MM3280J03NRH | SOT26A/B | - | 83J | ○ | ○ | × | × | 3.800 | 3.600 | 2.000 | 2.380 | 0.100 | -0.100 | 0.8 | 1.000 | 96 | 20 | 12 | 300 |
| MM3280J04NRH | SOT26A/B | - | 84J | ○ | ○ | × | × | 4.275 | 4.215 | 3.000 | 3.200 | 0.150 | -0.100 | 0.8 | 1.000 | 96 | 20 | 12 | 300 |
| MM3280J05NRH | SOT26A/B | - | 85J | ○ | ○ | × | × | 4.250 | 4.190 | 2.800 | 3.000 | 0.150 | -0.100 | 0.8 | 1.000 | 96 | 20 | 12 | 300 |
| MM3280J07NRH | SOT26A/B | - | 87J | ○ | ○ | × | × | 4.250 | 4.190 | 2.500 | 3.000 | 0.100 | -0.100 | 0.7 | 1.000 | 96 | 20 | 12 | 300 |
| MM3280J12NRH | SOT26A/B | - | 8CJ | ○ | ○ | × | × | 4.280 | 4.100 | 2.300 | 2.500 | 0.200 | -0.200 | 0.8 | 1.000 | 20 | 12 | 8 | 300 |
| MM3280J16NRH | SOT26A/B | - | 8EJ | ○ | ○ | × | × | 4.280 | 4.230 | 2.500 | 3.000 | 0.100 | -0.100 | 0.7 | 1.000 | 96 | 20 | 12 | 300 |
| MM3280JA1YRE | SON6C | 4 | J1 | ○ | ○ | × | × | 4.425 | 4.225 | 2.500 | 2.900 | 0.130 | -0.130 | 0.7 | 1.000 | 96 | 12 | 10 | 300 |
| MM3280JB1NRH | SOT26A/B | - | 8B1 | ○ | ○ | × | × | 4.425 | 4.225 | 2.500 | 2.900 | 0.130 | -0.130 | 0.7 | 1.000 | 96 | 12 | 10 | 300 |
| MM3280JB2NRH | SOT26A/B | - | 8B2 | ○ | ○ | × | × | 4.350 | 4.150 | 2.500 | 2.900 | 0.200 | -0.100 | 0.7 | 1.000 | 96 | 12 | 10 | 300 |
| MM3280JB3NRH | SOT26A/B | - | 8B3 | ○ | ○ | × | × | 4.375 | 4.275 | 2.800 | 3.000 | 0.170 | -0.150 | 0.7 | 1.000 | 96 | 12 | 10 | 300 |
| MM3280JB5NRH | SOT26A/B | - | 8B5 | ○ | ○ | × | × | 4.400 | 4.300 | 2.800 | 3.000 | 0.150 | -0.150 | 0.7 | 1.000 | 96 | 12 | 10 | 300 |
| MM3280JB7NRH | SOT26A/B | - | 8B7 | ○ | ○ | × | × | 4.425 | 4.225 | 2.500 | 2.900 | 0.160 | -0.160 | 0.7 | 1.000 | 96 | 12 | 10 | 300 |
| MM3280JC1YRE | SON6C | 4 | JC | ○ | ○ | × | × | 4.380 | 4.180 | 2.600 | 3.000 | 0.180 | -0.130 | 0.9 | 1.000 | 96 | 12 | 10 | 300 |
| MM3280JC2YRE | SON6C | 4 | C2 | × | ○ | × | × | 4.425 | 4.225 | 2.500 | 2.900 | 0.130 | -0.130 | 0.7 | 1.000 | 96 | 12 | 10 | 300 |
| MM3280JD2YRE | SON6C | 4 | DB | × | ○ | × | × | 4.425 | 4.225 | 2.500 | 2.900 | 0.130 | -0.130 | 0.7 | 1.000 | 96 | 12 | 10 | 300 |
| MM3280JD4YRE | SON6C | 4 | DD | × | ○ | × | × | 4.425 | 4.225 | 2.300 | 2.650 | 0.170 | -0.130 | 0.7 | 1.000 | 96 | 12 | 10 | 300 |
| MM3280JF1YRE | SON6C | 4 | AF | ○ | ○ | × | × | 4.425 | 4.225 | 2.500 | 2.500 | 0.100 | -0.100 | 0.5 | 1.000 | 96 | 12 | 10 | 300 |
| MM3280JF2YRE | SON6C | 4 | BF | ○ | ○ | × | × | 4.425 | 4.225 | 2.500 | 2.500 | 0.150 | -0.100 | 0.5 | 1.000 | 96 | 12 | 10 | 300 |
| MM3280JF3NRH | SOT-25A | - | 80J | ○ | ○ | × | × | 4.280 | 4.080 | 2.800 | 2.800 | 0.150 | -0.100 | 0.5 | 0.250 | 144 | 18 | 10 | 300 |
| MM3280JH1YRE | SON6C | 4 | AH | ○ | ○ | × | × | 4.415 | 4.215 | 2.500 | 2.900 | 0.045 | -0.045 | 0.3 | 1.000 | 96 | 12 | 10 | 300 |
| MM3280JH1RRE | SSON6J | 4 | JB | ○ | ○ | × | × | 4.415 | 4.215 | 2.500 | 2.900 | 0.045 | -0.045 | 0.3 | 1.000 | 96 | 12 | 10 | 300 |
| MM3280JH2YRE | SON6C | 4 | BH | ○ | ○ | × | × | 4.415 | 4.215 | 2.500 | 2.900 | 0.080 | -0.080 | 0.3 | 1.000 | 96 | 12 | 10 | 300 |

*1 0V battery charge function ○ : Permission × : Prohibition
 *2 Optional functions ○ : Provided × : Not provided

Please inquire to us, if you request a rank other than the above.

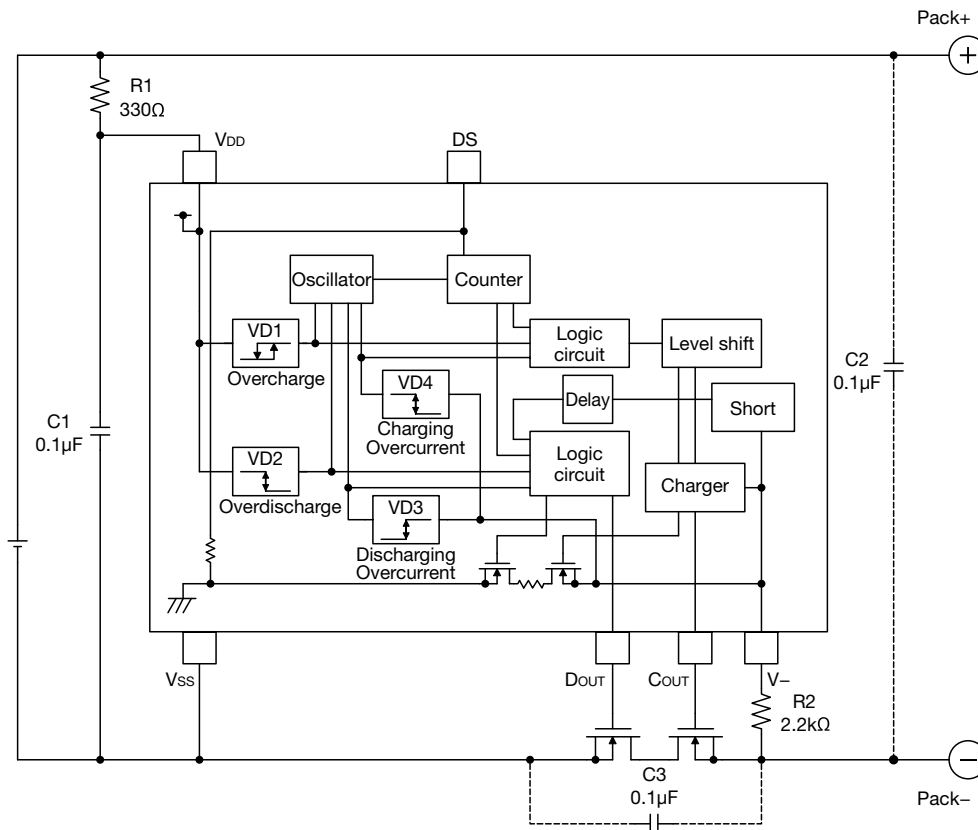
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| duct name | Package | Pin No. | Model No. | Optional function | | | | Detection / Release voltage | | | | | | | Detection delay time | | | | | | | | | | | | | | | | | | | | |
|--------------|------------|---------|-----------|----------------------------|--------------------------------|--------------------------------|---|------------------------------|----------------------------|---------------------------------|-------------------------------|---|--|-------------------------|---------------------------------|------------------------------------|--|---|----------------------------|----|----|--|--|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|
| | | | | 0V battery charge function | Charging overcurrent detection | Over voltage charger detection | Overcharge detection delay timer reset time | Overcharge detection voltage | Overcharge release voltage | Overdischarge detection voltage | Overdischarge release voltage | Discharging overcurrent detection voltage | Charging overcurrent detection voltage | Short detection voltage | Overcharge detection delay time | Overdischarge detection delay time | Discharging overcurrent detection delay time | Charging overcurrent detection delay time | Short detection delay time | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | *1 | *2 | | | Vdet1 | Vrel1 | Vdet2 | Vrel2 | Vdet3 | Vdet4 | Vshort | tVdet1 | tVdet2 | tVdet3 | tVdet4 | tshort |
| | | | | | | | | | | | | | | | | | | | | | | | | V | V | V | V | V | V | V | s | ms | ms | ms | us |
| MM3280JH2RRE | SSON6J | 4 | JC | ○ | ○ | × | × | 4.415 | 4.215 | 2.500 | 2.900 | 0.080 | -0.080 | 0.3 | 1.000 | 96 | 12 | 10 | 300 | | | | | | | | | | | | | | | | |
| MM3280JH3YRE | SON-6C | 4 | CH | ○ | ○ | × | × | 4.425 | 4.200 | 2.300 | 2.800 | 0.100 | -0.060 | 0.3 | 1.000 | 96 | 12 | 10 | 300 | | | | | | | | | | | | | | | | |
| MM3280JH4YRE | SON-6C | 4 | DH | ○ | ○ | × | × | 4.425 | 4.200 | 2.300 | 2.800 | 0.055 | -0.060 | 0.25 | 1.000 | 96 | 12 | 10 | 300 | | | | | | | | | | | | | | | | |
| MM3280JH5YRE | SON-6C | 4 | EH | ○ | ○ | × | × | 4.470 | 4.270 | 2.500 | 2.900 | 0.130 | -0.130 | 0.4 | 1.000 | 96 | 12 | 10 | 300 | | | | | | | | | | | | | | | | |
| MM3280JH6NRH | SOT-26A/B | - | 8B8 | ○ | ○ | × | × | 4.375 | 4.275 | 2.800 | 3.000 | 0.200 | -0.150 | 0.6 | 1.000 | 96 | 12 | 10 | 300 | | | | | | | | | | | | | | | | |
| MM3280JH7NRH | SOT-26A/B | - | 8B9 | ○ | ○ | × | × | 4.425 | 4.325 | 2.800 | 3.000 | 0.200 | -0.150 | 0.6 | 1.000 | 96 | 12 | 10 | 300 | | | | | | | | | | | | | | | | |
| MM3280JH8NRH | SOT-26A/B | - | 8BA | ○ | ○ | × | × | 4.280 | 4.080 | 2.800 | 3.000 | 0.150 | -0.150 | 0.5 | 1.200 | 144 | 9 | 8 | 320 | | | | | | | | | | | | | | | | |
| MM3280JL1YRE | SON-6C | 4 | L0 | × | ○ | × | × | 4.400 | 4.200 | 2.900 | 2.900 | 0.100 | -0.100 | 0.4 | 1.000 | 96 | 12 | 10 | 300 | | | | | | | | | | | | | | | | |
| MM3280JL2YRE | SON-6C | 4 | L1 | × | ○ | × | × | 4.425 | 4.225 | 2.500 | 2.500 | 0.180 | -0.125 | 0.5 | 1.000 | 32 | 8 | 8 | 250 | | | | | | | | | | | | | | | | |
| MM3280JM1YRE | SON-6C | 4 | M0 | × | ○ | × | × | 4.400 | 4.200 | 2.900 | 2.900 | 0.100 | -0.100 | 0.4 | 1.000 | 96 | 12 | 10 | 300 | | | | | | | | | | | | | | | | |
| MM3280N01YRE | SON6C | 1 | N1 | ○ | ○ | × | × | 4.280 | 4.180 | 2.300 | 2.300 | 0.160 | -0.160 | 0.9 | 1.000 | 96 | 20 | 16 | 400 | | | | | | | | | | | | | | | | |
| MM3280P09RRE | SSON6J | 2 | P9 | × | ○ | × | × | 4.280 | 4.180 | 2.700 | 2.700 | 0.065 | -0.075 | 0.9 | 1.000 | 96 | 20 | 18 | 400 | | | | | | | | | | | | | | | | |
| MM3280P10RRE | SSON6J | 2 | P0 | × | ○ | × | × | 4.280 | 4.100 | 2.300 | 2.300 | 0.170 | -0.170 | 0.9 | 1.000 | 24 | 12 | 4 | 400 | | | | | | | | | | | | | | | | |
| MM3280P12RRE | SSON6E | 2 | P2 | ○ | ○ | × | × | 4.280 | 4.100 | 2.300 | 2.300 | 0.150 | -0.220 | 0.9 | 1.000 | 24 | 12 | 4 | 400 | | | | | | | | | | | | | | | | |
| MM3280P16RRE | SSON6J | 2 | PA | × | ○ | × | × | 4.280 | 4.100 | 2.300 | 2.300 | 0.160 | -0.150 | 0.9 | 1.000 | 24 | 12 | 4 | 400 | | | | | | | | | | | | | | | | |
| MM3280P17RRE | SSON6J | 2 | PB | × | ○ | × | × | 4.280 | 4.100 | 2.300 | 2.300 | 0.120 | -0.120 | 0.9 | 1.000 | 24 | 12 | 4 | 400 | | | | | | | | | | | | | | | | |
| MM3280P18RRE | SSON6J | 2 | PD | ○ | ○ | × | × | 4.420 | 4.240 | 3.000 | 3.000 | 0.150 | -0.220 | 0.9 | 1.000 | 24 | 12 | 4 | 400 | | | | | | | | | | | | | | | | |
| MM3280P20RRE | SSON6J | 2 | PC | × | ○ | × | × | 4.280 | 4.100 | 2.300 | 2.300 | 0.200 | -0.120 | 0.9 | 1.000 | 24 | 12 | 4 | 400 | | | | | | | | | | | | | | | | |
| MM3280P21RRE | SSON6J | 2 | PF | × | ○ | × | × | 4.430 | 4.190 | 2.300 | 2.300 | 0.240 | -0.250 | 0.9 | 1.000 | 24 | 12 | 4 | 400 | | | | | | | | | | | | | | | | |
| MM3280P22RRE | SSON6J | 2 | PE | × | ○ | × | × | 4.420 | 4.240 | 2.300 | 2.300 | 0.210 | -0.220 | 0.9 | 1.000 | 24 | 12 | 4 | 400 | | | | | | | | | | | | | | | | |
| MM3280P23RRE | SSON6J | 2 | PE | ○ | ○ | × | × | 4.430 | 4.250 | 2.300 | 2.300 | 0.120 | -0.120 | 0.9 | 1.000 | 24 | 12 | 4 | 400 | | | | | | | | | | | | | | | | |
| MM3280P25RRE | SSON6J | 2 | PK | × | ○ | × | × | 4.280 | 4.100 | 2.300 | 2.300 | 0.160 | -0.100 | 0.9 | 1.000 | 128 | 24 | 4 | 400 | | | | | | | | | | | | | | | | |
| MM3280P26RRE | SSON6J | 2 | PL | × | ○ | × | × | 4.420 | 4.240 | 2.300 | 2.300 | 0.170 | -0.170 | 0.9 | 1.000 | 24 | 12 | 4 | 400 | | | | | | | | | | | | | | | | |
| MM3280PA1RRE | SSON6J | 2 | PH | × | ○ | × | × | 4.420 | 4.420 | 2.300 | 2.300 | 0.115 | -0.130 | 0.9 | 1.000 | 24 | 12 | 4 | 400 | | | | | | | | | | | | | | | | |
| MM3280PA6RRE | SSON6J | 2 | PN | ○ | ○ | × | × | 4.370 | 4.370 | 2.300 | 2.300 | 0.140 | -0.130 | 0.5 | 1.000 | 24 | 12 | 4 | 400 | | | | | | | | | | | | | | | | |
| MM3280PA7RRE | SSON-6J | 2 | PR | × | ○ | × | × | 4.430 | 4.430 | 2.800 | 2.800 | 0.080 | -0.080 | 0.5 | 1.000 | 24 | 12 | 4 | 400 | | | | | | | | | | | | | | | | |
| MM3280PA9RRE | SSON-6J/6M | 2 | PS | × | ○ | × | × | 4.280 | 4.280 | 2.700 | 2.700 | 0.070 | -0.090 | 0.5 | 1.000 | 24 | 12 | 4 | 400 | | | | | | | | | | | | | | | | |
| MM3280S01NRH | SOT26A/B | - | 81S | ○ | × | ○ | × | 4.280 | 4.080 | 3.000 | 3.000 | 0.080 | - | 0.9 | 1.200 | 144 | 8 | - | 400 | | | | | | | | | | | | | | | | |
| MM3280S02RRE | SSON6J | 1 | S2 | ○ | × | ○ | × | 4.300 | 4.100 | 3.000 | 3.000 | 0.250 | - | 0.9 | 1.200 | 144 | 8 | - | 400 | | | | | | | | | | | | | | | | |
| MM3280T01NRH | SOT26A/B | - | 81T | × | ○ | × | × | 4.280 | 4.280 | 2.800 | 2.800 | 0.050 | -0.100 | 0.9 | 1.000 | 20 | 6 | 8 | 200 | | | | | | | | | | | | | | | | |
| MM3280T02RRE | SSON6J | 1 | T2 | × | ○ | × | × | 4.280 | 4.280 | 2.800 | 2.800 | 0.050 | -0.100 | 0.9 | 1.000 | 20 | 6 | 8 | 200 | | | | | | | | | | | | | | | | |
| MM3280T03NRH | SOT26A/B | - | 83T | × | ○ | × | × | 3.670 | 3.670 | 2.050 | 2.050 | 0.050 | -0.060 | 0.4 | 1.000 | 96 | 96 | 96 | 400 | | | | | | | | | | | | | | | | |
| MM3280W01NRH | SOT26A/B | - | 812 | ○ | ○ | ○ | × | 4.280 | 4.280 | 2.300 | 2.500 | 0.150 | -0.150 | 0.9 | 1.000 | 24 | 12 | 8 | 400 | | | | | | | | | | | | | | | | |
| MM3280W06NRH | SOT26A/B | - | 862 | × | ○ | ○ | × | 4.325 | 4.325 | 2.500 | 2.900 | 0.150 | -0.150 | 0.7 | 1.000 | 24 | 12 | 8 | 400 | | | | | | | | | | | | | | | | |
| MM3280W07NRH | SOT26A/B | - | 872 | ○ | ○ | ○ | × | 4.350 | 4.350 | 2.300 | 2.500 | 0.150 | -0.150 | 0.7 | 1.000 | 24 | 12 | 8 | 400 | | | | | | | | | | | | | | | | |

*1 0V battery charge function ○ : Permission × : Prohibition
 *2 Optional functions ○ : Provided × : Not provided

Please inquire to us, if you request a rank other than the above.

Application Circuit



R1 and C1 stabilize a supply voltage ripple. However, the detection voltage rises by the current of penetration in IC of the voltage detection when R1 is enlarged, and the value of R1 is adjusted to 1kΩ or less. Moreover, adjust the value of C1 to 0.01μF or more to do the stability operation, please.

R1 and R2 resistors are current limit resistance if a charger is connected reversibly or a high-voltage charger that exceeds the absolute maximum rating is connected. R1 and R2 may cause a power consumption will be over rating of power dissipation, therefore the 'R1+R2' should be more than 1kΩ. Moreover, if R2 is too enlarged, the charger connection release cannot be occasionally done after the overdischarge is detected, so adjust the value of R2 to 10kΩ or less, please.

C2 and C3 capacitors have effect that the system stability about voltage ripple or imported noise. After check characteristics, decide that these capacitors should be inserted or not, where should be inserted, and capacitance value, please.