

Product Summary

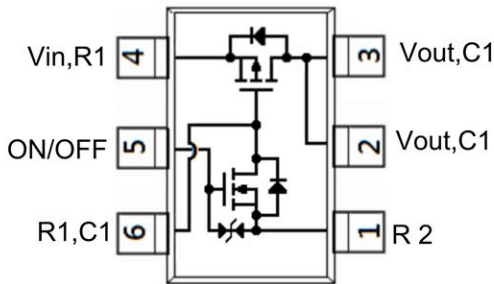
- $V_{drop} = 0.2V @ V_{in}=12V, I_L=2.0A, R_{DS(ON)}= 100m\Omega$
- $V_{drop} = 0.2V @ V_{in}=5.0V, I_L=1.8A, R_{DS(ON)}= 110m\Omega$
- $V_{drop} = 0.2V @ V_{in}=2.5V, I_L=1.4A, R_{DS(ON)}= 140m\Omega$

Application

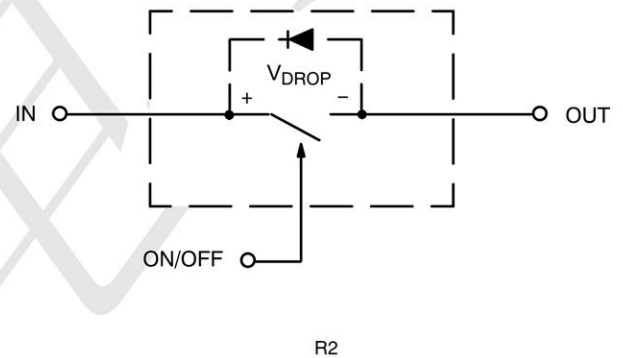
- Battery Packs
- Battery-Powered Portable Equipment
- Cellular and Cordless Telephones

Package and Pin Configuration

SOT23-6



EQUIVALENT CIRCUIT



Marking: 324P

324P= is Part Number ,Fixed

Absolute Maximum Ratings ($T_A=25^\circ C$ unless otherwise noted)

| PARAMETER | SYMBOL | Ratings | UNITS |
|---|------------------|---------|--------------|
| Input Voltage Range ^(Note 1) | V_{IN} | 20 | V |
| On/Off Voltage Range | V_{ON}/V_{OFF} | 12 | V |
| Continuous Load Current ^t (Note 2,3) | I_D | 2 | A |
| Pulsed Load Current ^(Note 4) | I_D | 8 | A |
| Power Dissipation ^(Note 2) | P_D | 0.83 | W |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -55~150 | $^\circ C$ |
| ESD, MIL-STD-883D HBM (100pF/1.5kohm) ($V_{on/off}$ pin) | V_{ESD} | 2 | kV |
| Typical Junction to Ambient ^(Note 2) | $R_{\theta JA}$ | 150 | $^\circ C/W$ |

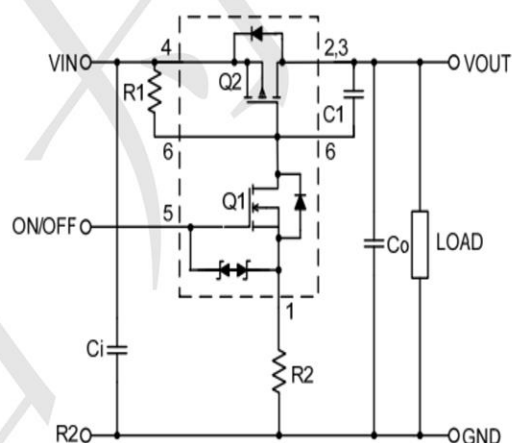
Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNITS |
|---------------------------------------|------------------|---|------|-------|------|---------------|
| Off Characteristics | | | | | | |
| Leakage Current | I_{FL} | $V_{IN}=20\text{V}, V_{ON}/V_{OFF}=0\text{V}$ | - | - | 1 | μA |
| Diode Forward Voltage | V_{SD} | $I_S=-1.0\text{A}$ | - | -0.76 | -1.2 | V |
| On Characteristics | | | | | | |
| Input Voltage Range | V_{IN} | | 2.5 | - | 20 | V |
| On/Off Voltage Range | V_{ON}/V_{OFF} | | 2.5 | - | 12 | V |
| Drain-Source On-State Resistance (Q2) | $R_{DS(on)}$ | $V_{GS}=-12\text{V}, I_D=-2.0\text{A}$ | - | 84 | 100 | m Ω |
| | | $V_{GS}=-5.0\text{V}, I_D=-1.8\text{A}$ | - | 90 | 110 | |
| | | $V_{GS}=-2.5\text{V}, I_D=-1.4\text{A}$ | - | 110 | 140 | |

NOTES :

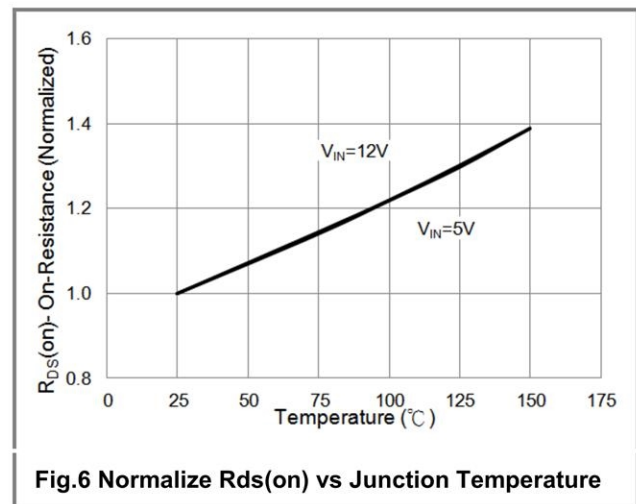
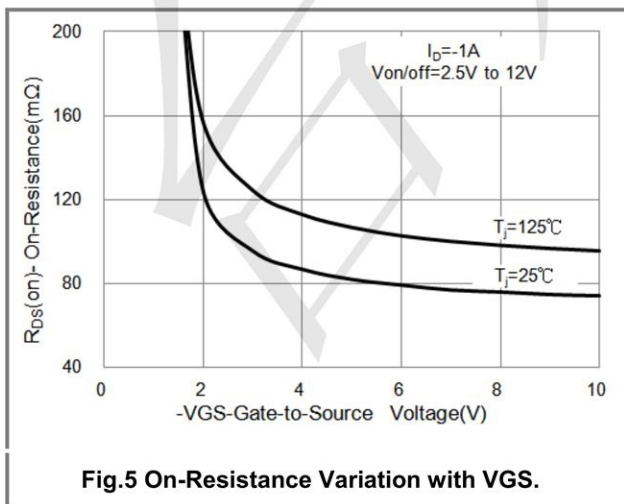
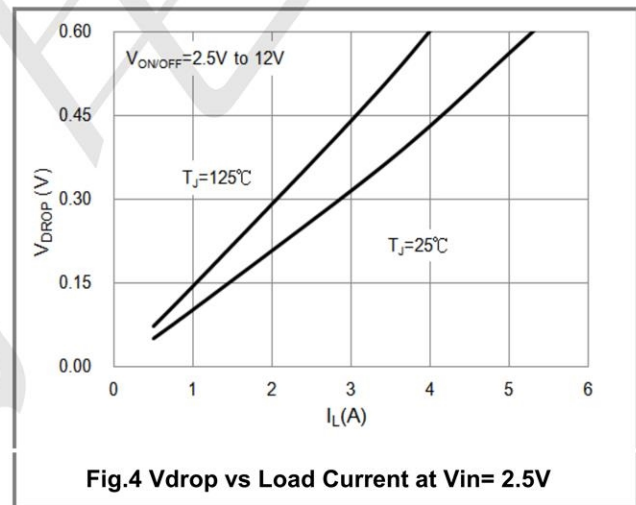
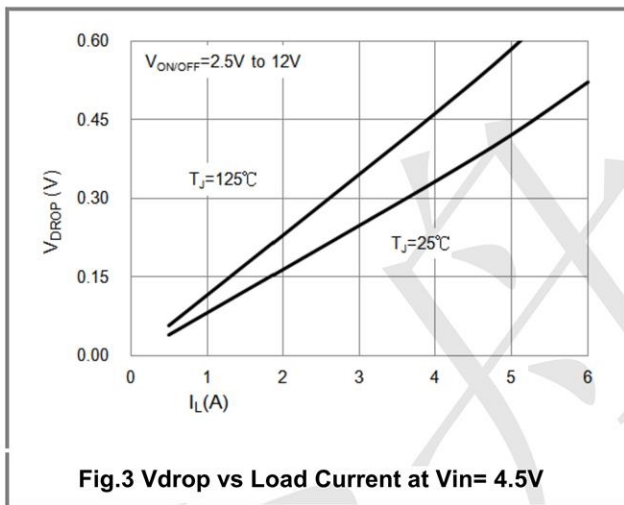
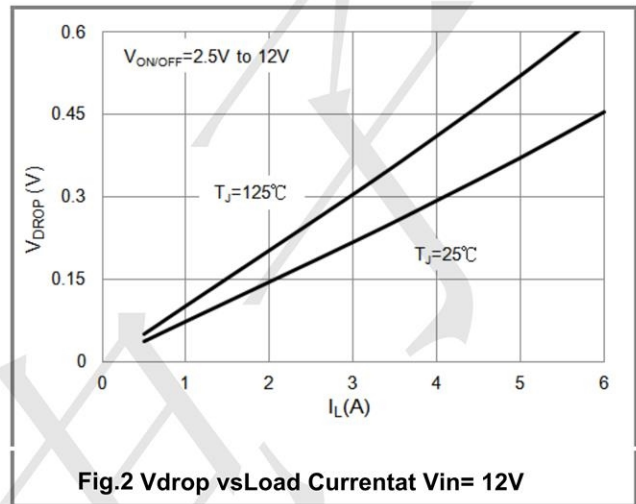
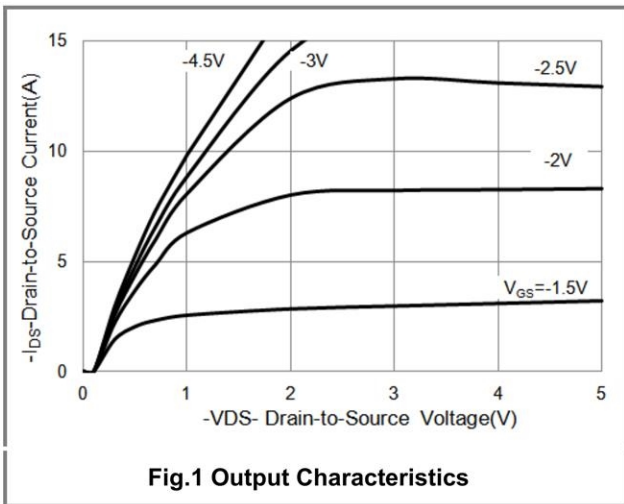
- V_{IN} Range can be up to 20V, but R1 and R2 must be scaled such that V_{GS} do not exceed 12V.
- $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins mounted on a 1 inch FR-4 with 2oz. square pad of copper
- The maximum current rating is package limited
- Pulse test: pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$

Typical Application Circuit



| COMPONENTS | | |
|------------|----------------------------|---------------------------------------|
| R1 | Pull-Up Resistor | Typical 10k Ω to 1M Ω * |
| R2 | Optional Slew-Rate Control | Typical 0 to 100k Ω |
| C1 | Optional Slew-Rate Control | Typical 1000pF |

Typical Operating Characteristics



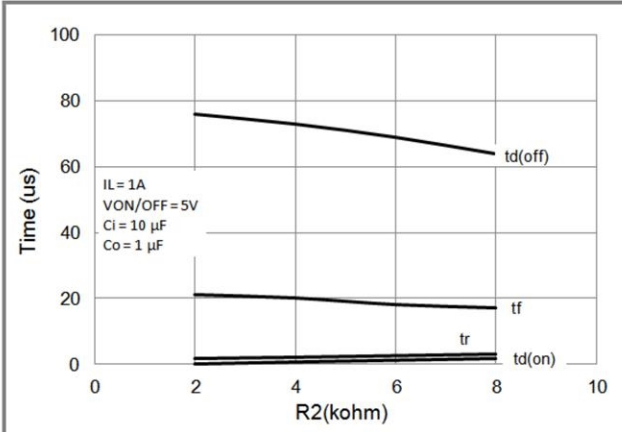


Fig.7 Switching Variation R2 at Vin=12V, R1=20k Ω

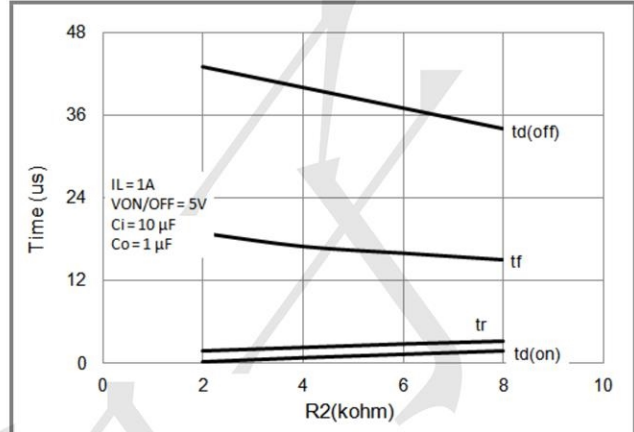


Fig.8 Switching Variation R2 at Vin=5V, R1=20k Ω

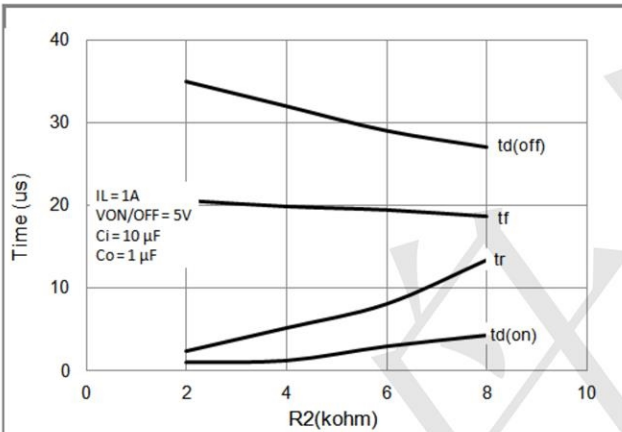


Fig.9 Switching Variation R2 at Vin=3.3V, R1=20k Ω

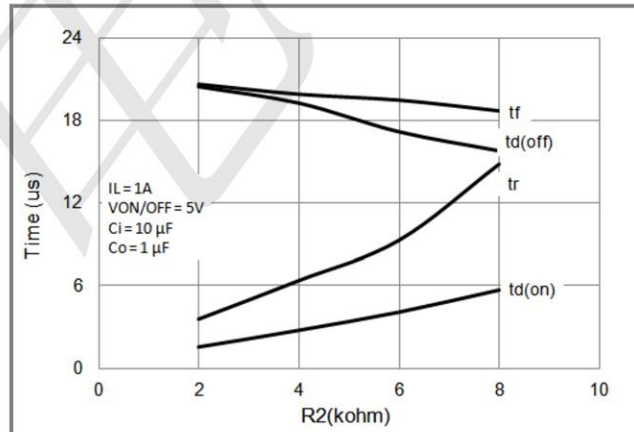


Fig.10 Switching Variation R2 at Vin=2.5V, R1=20k Ω

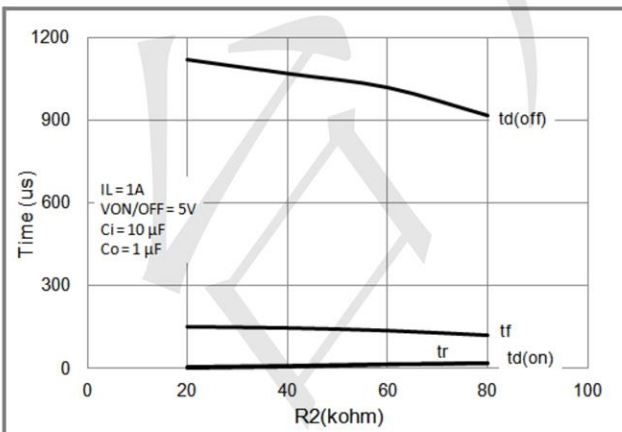


Fig.11 Switching Variation R2 at Vin=12V, R1=300k

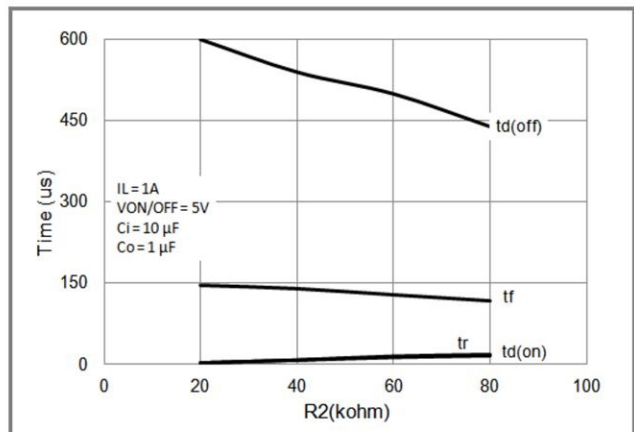
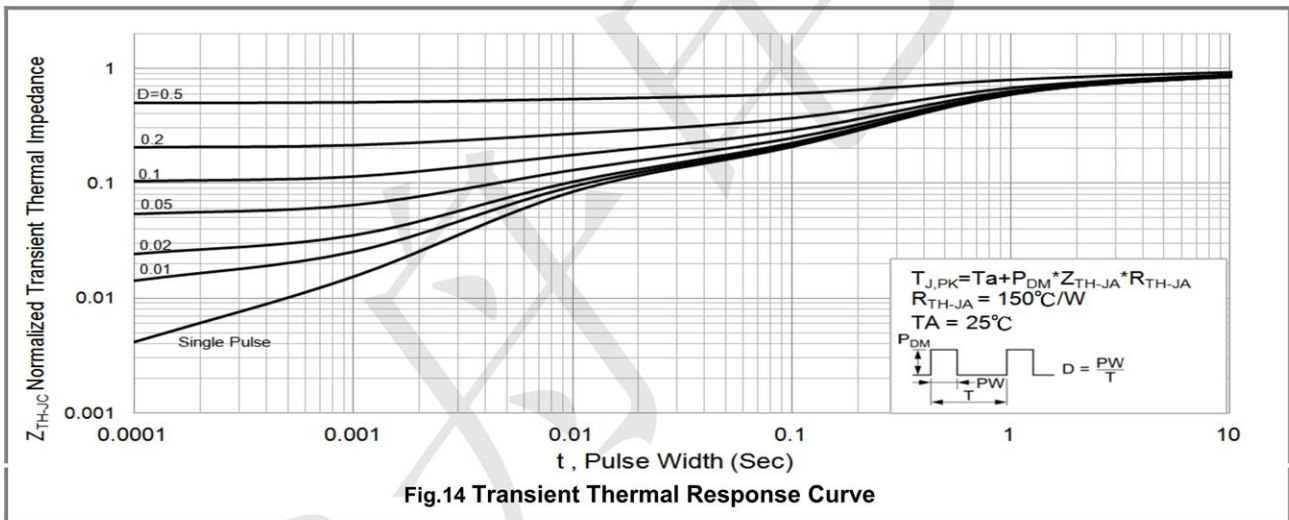
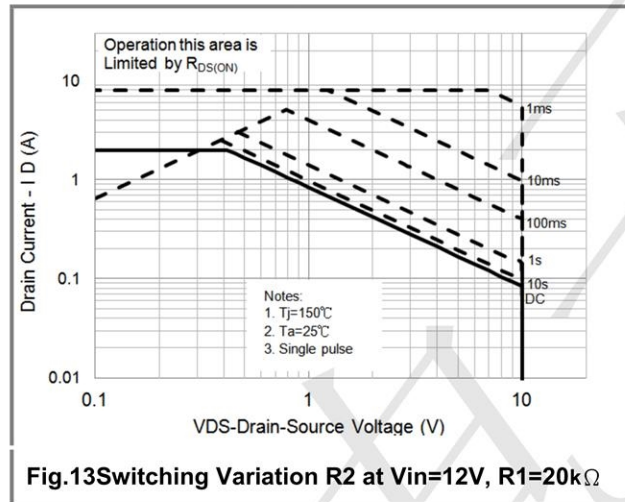
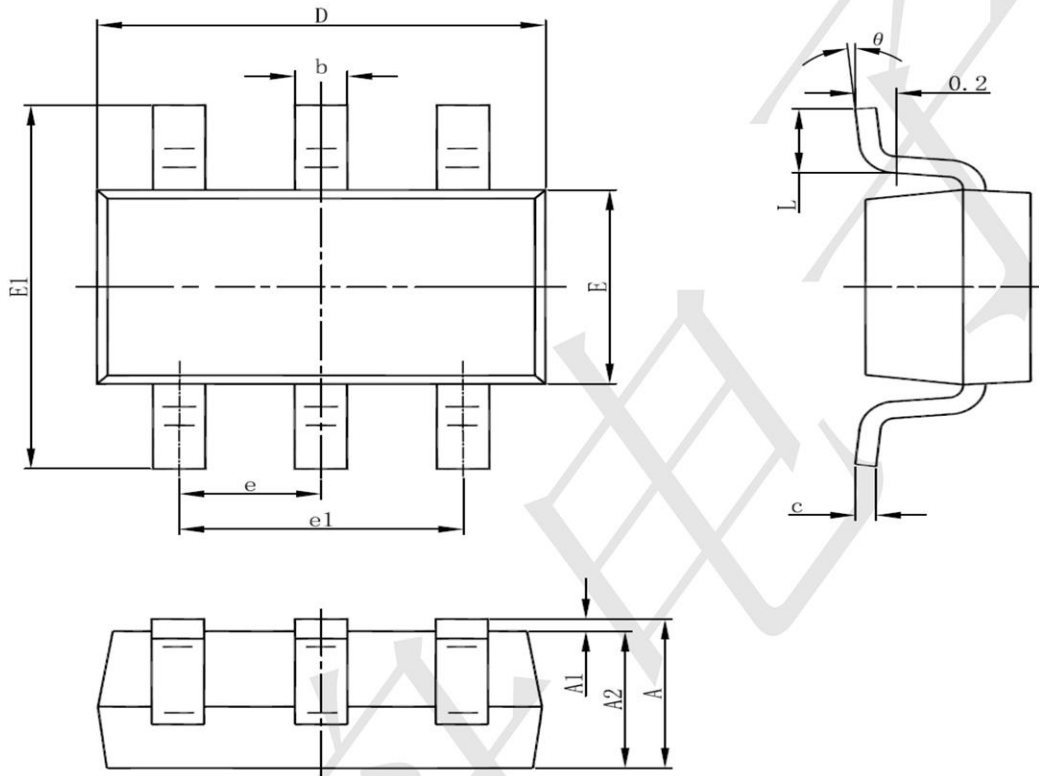


Fig.12 Switching Variation R2 at Vin=5V, R1=300k





SOT23-6 Package Information



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|----------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 1.050 | 1.250 | 0.041 | 0.049 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 1.050 | 1.150 | 0.041 | 0.045 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.100 | 0.200 | 0.004 | 0.008 |
| D | 2.820 | 3.020 | 0.111 | 0.119 |
| E | 1.500 | 1.700 | 0.059 | 0.067 |
| E1 | 2.650 | 2.950 | 0.104 | 0.116 |
| e | 0.950(BSC) | | 0.037(BSC) | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.300 | 0.600 | 0.012 | 0.024 |
| θ | 0° | 8° | 0° | 8° |