



New Product

**Si4704DY**  
 Vishay Siliconix

## Load Switch with Level-Shift

### PRODUCT SUMMARY

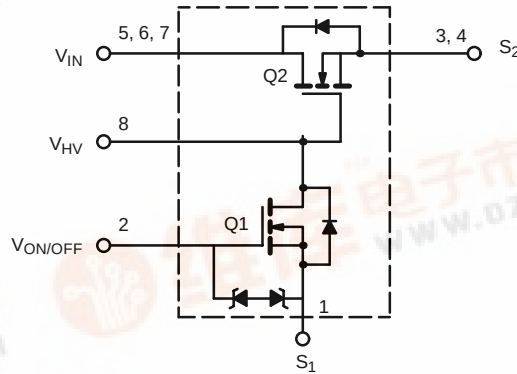
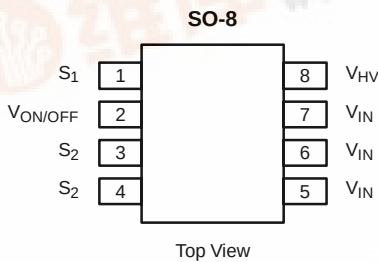
| $V_{DS2}$ (V) | $r_{DS(on)}$ ( $\Omega$ ) | $I_D$ (A) |
|---------------|---------------------------|-----------|
| 20            | 0.017 @ $V_{GS2} = 4.5$ V | 6.5       |
|               | 0.024 @ $V_{GS2} = 2.5$ V | 5.5       |

### FEATURES

- TrenchFET® Power MOSFET
- LITTLE FOOT Plus™ Level Shift

### APPLICATIONS

- Low Voltage BUS/Load Switching



### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

| Parameter                                                          | Symbol                  | Limit      | Unit             |
|--------------------------------------------------------------------|-------------------------|------------|------------------|
| Input Voltage                                                      | $V_{IN}$                | 20         | V                |
| ON/OFF Voltage                                                     | $V_{ON/OFF}$            | 8          |                  |
| Load Current                                                       | Continuous <sup>a</sup> | 6.5        | A                |
|                                                                    | Pulsed <sup>b</sup>     | $\pm 30$   |                  |
| Continuous Intrinsic Diode Conduction <sup>a</sup>                 | $I_S$                   | -1.15      |                  |
| Maximum Power Dissipation <sup>a</sup>                             | $P_D$                   | 1.25       | W                |
| Operating Junction and Storage Temperature Range                   | $T_J, T_{stg}$          | -55 to 150 | $^\circ\text{C}$ |
| ESD Rating, MIL-STD-883D Human Body Model (100 pF, 1500 $\Omega$ ) | ESD                     | 3          | kV               |

### THERMAL RESISTANCE RATINGS

| Parameter                                                              | Symbol     | Typical | Maximum | Unit               |
|------------------------------------------------------------------------|------------|---------|---------|--------------------|
| Maximum Junction-to-Ambient ( $t = \text{steady state}$ ) <sup>a</sup> | $R_{thJA}$ | 80      | 100     | $^\circ\text{C/W}$ |
| Maximum Junction-to-Foot (Q2)                                          | $R_{thJC}$ | 25      | 30      |                    |

### SPECIFICATIONS ( $T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

| Parameter                   | Symbol       | Test Condition                                                                | Min | Typ    | Max   | Unit          |
|-----------------------------|--------------|-------------------------------------------------------------------------------|-----|--------|-------|---------------|
| <b>OFF Characteristics</b>  |              |                                                                               |     |        |       |               |
| Reverse Leakage Current     | $I_{FL}$     | $V_{IN} = 20$ V, $V_{ON/OFF} = 0$ V, $V_{HV} = 0$ V                           |     |        | 1     | $\mu\text{A}$ |
| Diode Forward Voltage       | $V_{SD}$     | $I_S = -1.15$ A                                                               |     | 0.65   | 1     | V             |
| <b>ON Characteristics</b>   |              |                                                                               |     |        |       |               |
| On-Resistance (Q2)          | $r_{DS(on)}$ | $V_{ON/OFF} = 0$ V, $I_D = 7$ A, $V_{HV} = 4.5$ V, $V_{S2} = 0$ V             |     | 0.014  | 0.017 | $\Omega$      |
|                             |              | $V_{ON/OFF} = 0$ V, $I_D = 6$ A, $V_{HV} = 2.5$ V, $V_{S2} = 0$ V             |     | 0.0195 | 0.024 |               |
| On-State (Q2) Drain-Current | $I_{D(on)}$  | $V_{IN-OUT} \leq 0.1$ V, $V_{IN} = 5$ V, $V_{ON/OFF} = 0$ V, $V_{HV} = 4.5$ V | 20  |        |       | A             |

Notes:

<sup>a</sup> Surface Mounted on FR4 Board.<sup>b</sup> Pulse test: pulse width  $\leq 300$   $\mu\text{s}$ , duty cycle  $\leq 2\%$ .

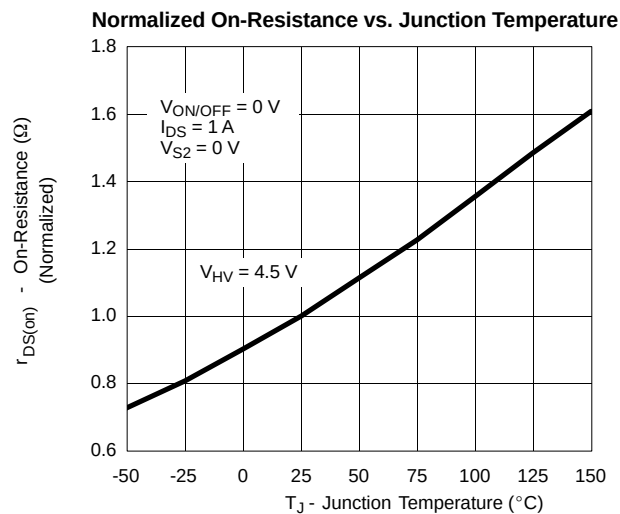
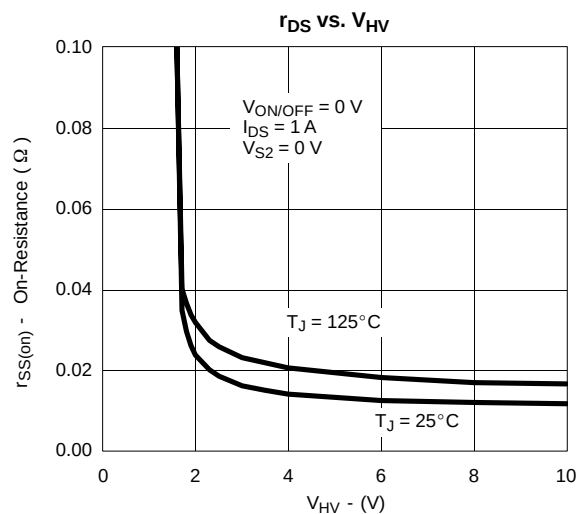
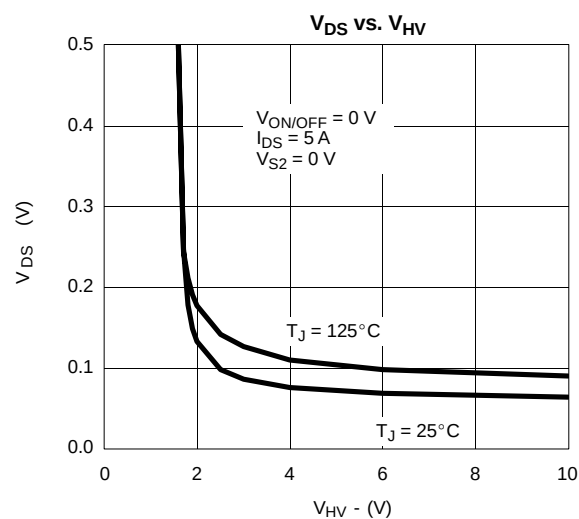
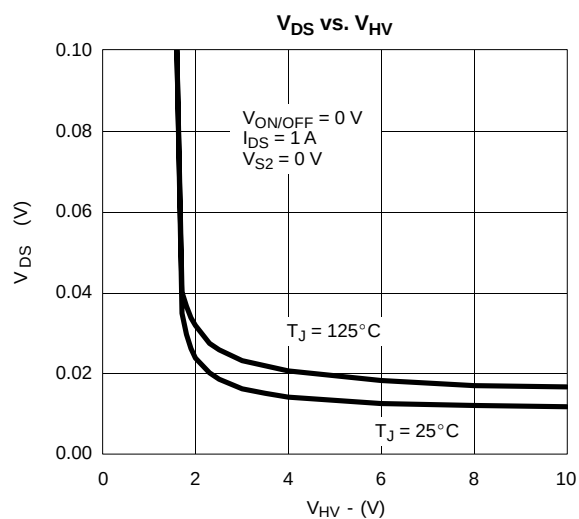
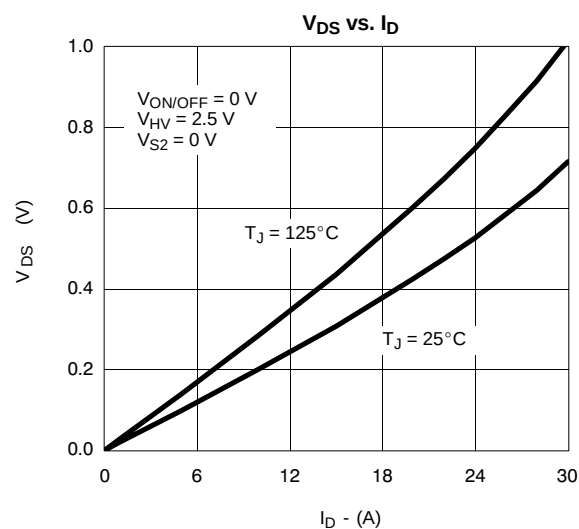
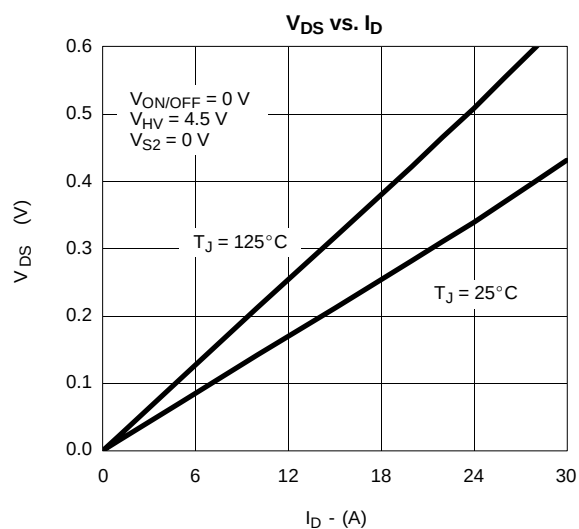
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## TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

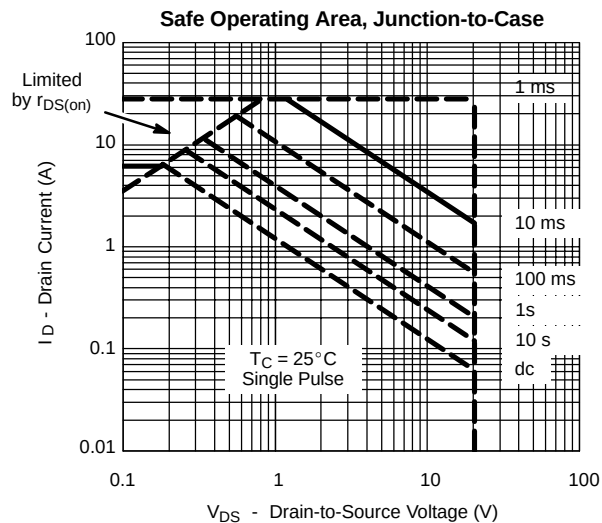
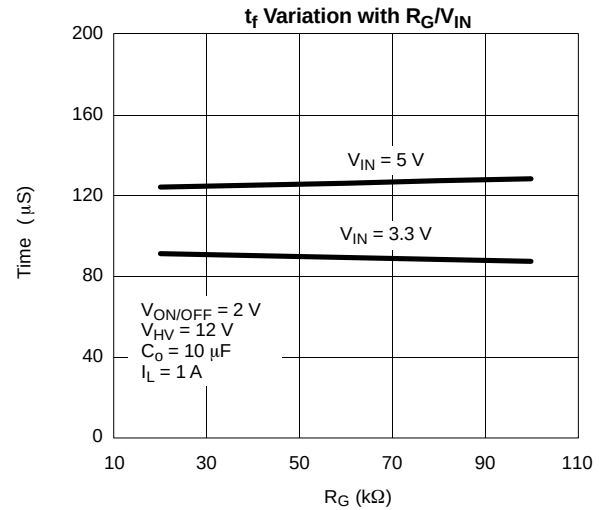
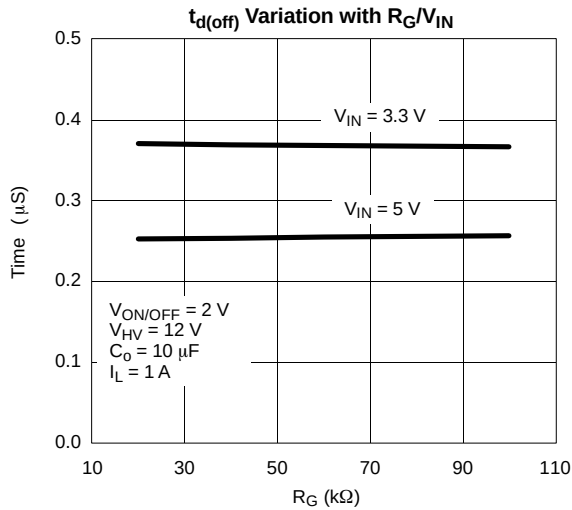
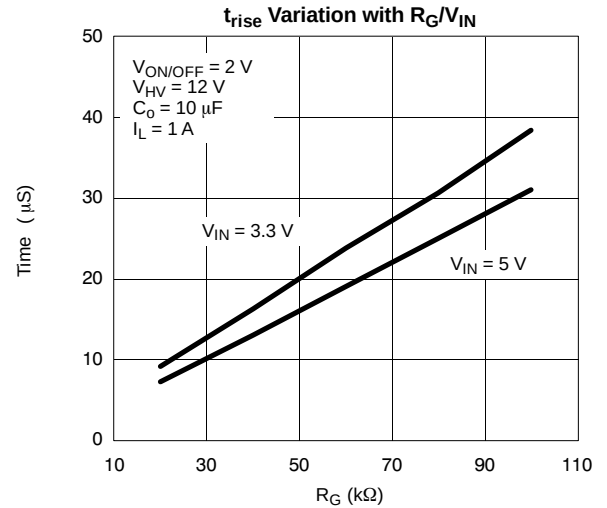
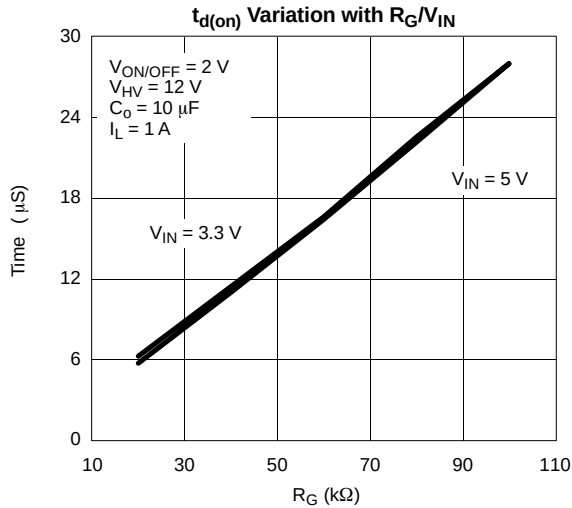




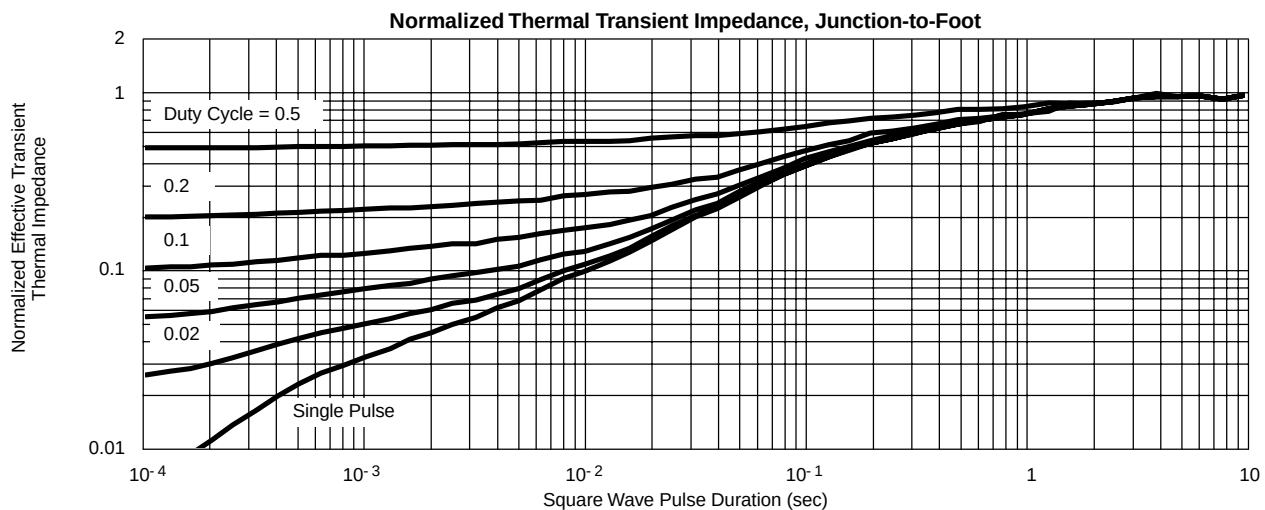
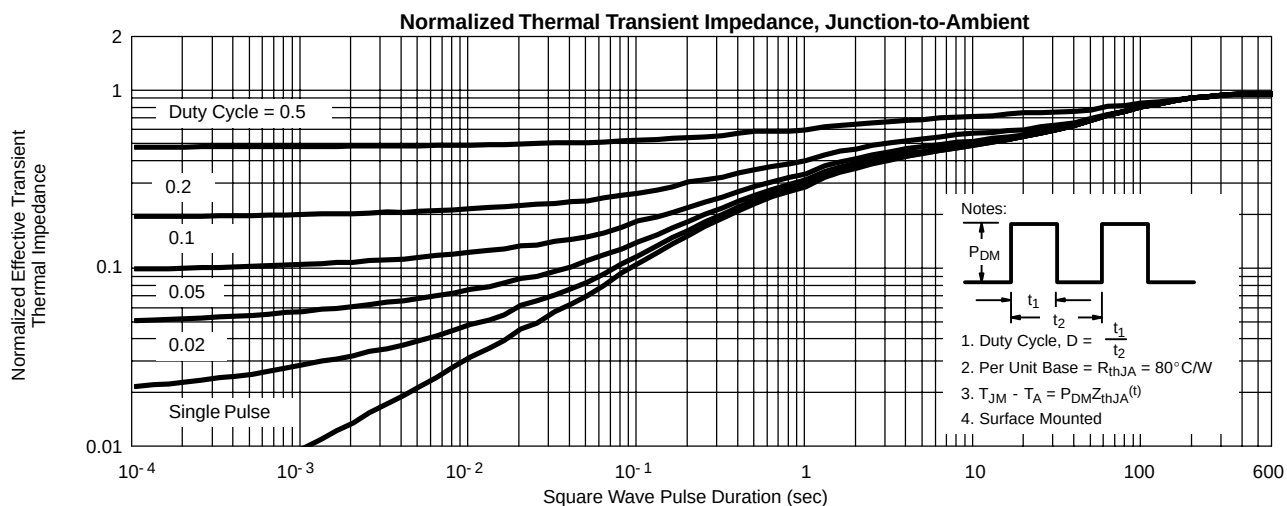
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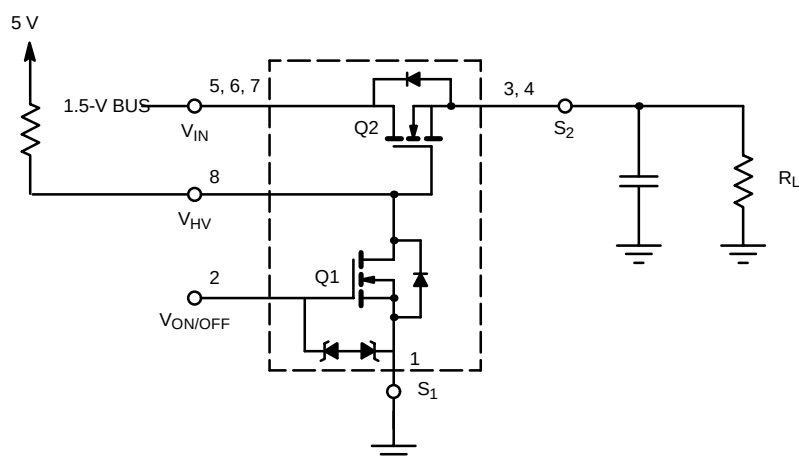
**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**



**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**



**TYPICAL APPLICATION CIRCUIT**



NOTE: Voltage difference between pull-up voltage, 5 V, and BUS voltage, 1.5 V, should be greater than 2.5 V.