



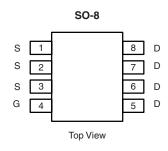
P-Channel 2.5-V (G-S) MOSFET

| PRODUCT SUMMARY | | | | | |
|---------------------|------------------------------------|--------------------|--|--|--|
| V _{DS} (V) | $R_{DS(on)}(\Omega)$ | I _D (A) | | | |
| | 0.011 at V _{GS} = - 10 V | - 13.7 | | | |
| - 20 | 0.014 at V _{GS} = - 4.5 V | - 12.3 | | | |
| | 0.020 at V _{GS} = - 2.5 V | - 10.3 | | | |

FEATURES

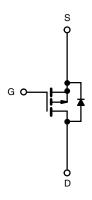
- Halogen-free According to IEC 61249-2-21 Available
- TrenchFET® Power MOSFETs





Ordering Information: Si4463BDY-T1-E3 (Lead (Pb)-free)

Si4463BDY-T1-GE3 (Lead (Pb)-free and Halogen-free)



P-Channel MOSFET

| Parameter | | Symbol | 10 s | Steady State | Unit |
|---|------------------------|-----------------------------------|-------------|--------------|------|
| Drain-Source Voltage | | V_{DS} | - 20 | | V |
| Gate-Source Voltage | | V _{GS} | ± 12 | | |
| Continuous Dunin Courset /T 450 00\8 | T _A = 25 °C | - I _D | - 13.7 | - 9.8 | |
| Continuous Drain Current (T _J = 150 °C) ^a | T _A = 70 °C | | - 11.1 | - 7.9 | |
| Pulsed Drain Current | | I _{DM} | - 50 | | Α |
| Continuous Source Current (Diode Conduction) ^a | | I _S | - 2.7 | - 1.36 | |
| | T _A = 25 °C | P _D | 3.0 | 1.5 | W |
| Maximum Power Dissipation ^a | T _A = 70 °C |] ^r D | 1.9 | 0.95 | VV |
| Operating Junction and Storage Temperature Range | | T _J , T _{stg} | - 55 to 150 | | °C |

| THERMAL RESISTANCE RATINGS | | | | | | |
|--|--------------|------------|---------|---------|------|--|
| Parameter | | Symbol | Typical | Maximum | Unit | |
| Maximum boration to Ambienta | t ≤ 10 s | R_{thJA} | 35 | 42 | | |
| Maximum Junction-to-Ambient ^a | Steady State | | 70 | 84 | °C/W | |
| Maximum Junction-to-Foot (Drain) | Steady State | R_{thJF} | 17 | 21 | | |

Notes:

a. Surface Mounted on 1" x 1" FR4 board.

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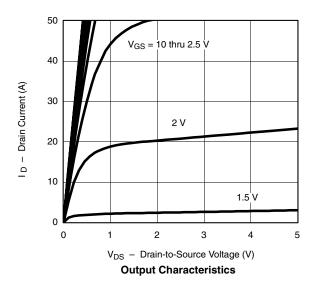
| Parameter | Symbol | Test Conditions | Min. | Тур. | Max. | Unit | |
|---|---------------------|--|----------|--------|----------|------|--|
| Static | | | | | | | |
| Gate Threshold Voltage | V _{GS(th)} | $V_{DS} = V_{GS}, I_{D} = -250 \mu A$ | - 0.6 | | - 1.4 | V | |
| Gate-Body Leakage | I _{GSS} | $V_{DS} = 0 \text{ V}, V_{GS} = \pm 12 \text{ V}$ | | | ± 100 | nA | |
| Zara Cata Valtana Duain Comunant | I _{DSS} | V _{DS} = - 20 V, V _{GS} = 0 V | | | - 1 | μΑ | |
| Zero Gate Voltage Drain Current | | V _{DS} = - 20 V, V _{GS} = 0 V, T _J = 70 °C | | | - 10 | | |
| On-State Drain Current ^a | I _{D(on)} | V _{DS} = - 5 V, V _{GS} = - 4.5 V | - 30 | | | Α | |
| | | V _{GS} = - 10 V, I _D = - 13.7 A | | 0.0085 | 85 0.011 | | |
| Drain-Source On-State Resistance ^a | R _{DS(on)} | V _{GS} = - 4.5 V, I _D = - 12.3 A | 0.010 0. | | 0.014 | Ω | |
| | | V _{GS} = - 2.5 V, I _D = - 5 A | | 0.015 | 0.020 | 1 | |
| Forward Transconductance ^a | 9 _{fs} | V _{DS} = - 10 V, I _D = - 13.7 A | | 44 | | S | |
| Diode Forward Voltage ^a | V_{SD} | I _S = - 2.7 A, V _{GS} = 0 V | | - 0.7 | - 1.1 | V | |
| Dynamic ^b | | | | | | | |
| Total Gate Charge | Q_g | | | 37 | 56 | | |
| Gate-Source Charge | Q_{gs} | $V_{DS} = -10 \text{ V}, V_{GS} = -4.5 \text{ V}, I_{D} = -13.7 \text{ A}$ | | 8.7 | | nC | |
| Gate-Drain Charge | Q_{gd} | | | 11 | | 1 | |
| Gate Resistance | R_g | f = 1 MHz | | 2.7 | | Ω | |
| Turn-On Delay Time | t _{d(on)} | | | 35 | 55 | | |
| Rise Time | t _r | V_{DD} = - 10 V, R_L = 10 Ω | | 60 | 90 | | |
| Turn-Off Delay Time | t _{d(off)} | $I_D \cong$ - 1 A, V_{GEN} = - 4.5 V, R_g = 6 Ω | | 115 | 170 | ns | |
| Fall Time | t _f | | | 75 | 115 | | |
| Source-Drain Reverse Recovery Time | t _{rr} | I _F = - 2.3 A, dI/dt = 100 A/μs | | 50 | 75 | | |

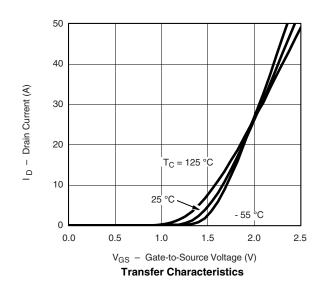
Notes:

- a. Pulse test; pulse width \leq 300 μ s, duty cycle \leq 2 %.
- b. Guaranteed by design, not subject to production testing.

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



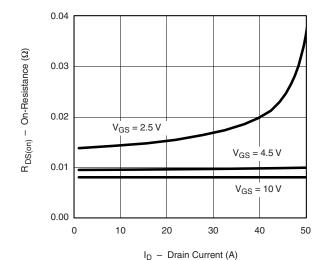




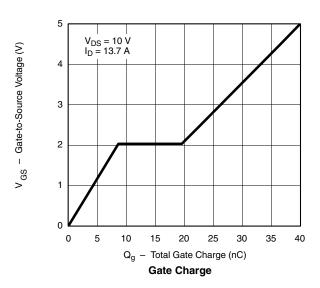




TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



On-Resistance vs. Drain Current

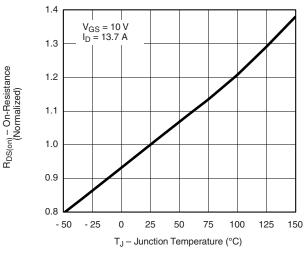


 $T_{J} = 150 \, ^{\circ}\text{C}$ $T_{J} = 25 \, ^{\circ}\text{C}$ $T_{J} = 25 \, ^{\circ}\text{C}$ $V_{SD} - \text{Source-to-Drain Voltage (V)}$

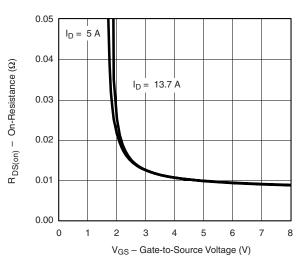
Source-Drain Diode Forward Voltage

5000 4000 Ciss 3000 Coss 1000 Crss 0 0 4000 Coss 1000 0 0 4 8 12 16 20

V_{DS} - Drain-to-Source Voltage (V) **Capacitance**



On-Resistance vs. Junction Temperature



On-Resistance vs. Gate-to-Source Voltage

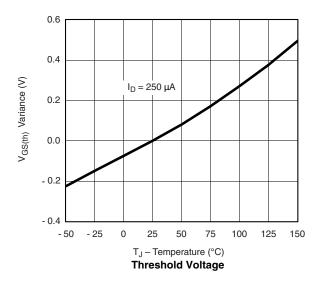
50

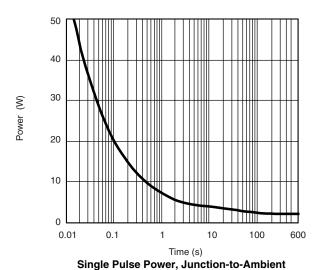
Source Current (A)

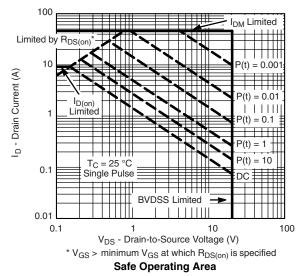
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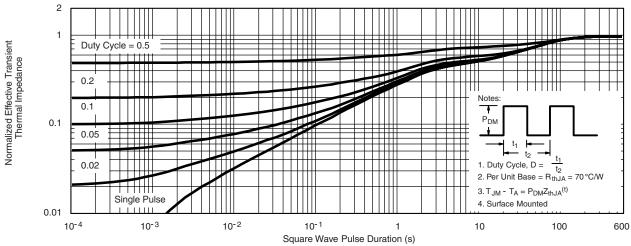
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TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted





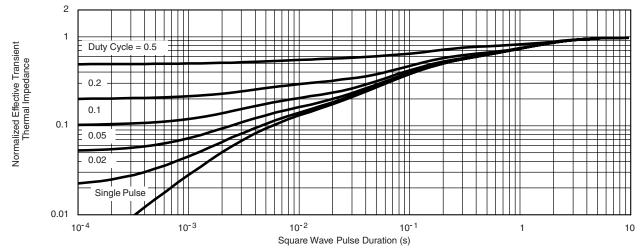




Normalized Thermal Transient Impedance, Junction-to-Ambient



TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



Normalized Thermal Transient Impedance, Junction-to-Foot

Vishay Siliconix maintains worldwide manufacturing capability. Products may be manufactured at one of several qualified locations. Reliability data for Silicon Technology and Package Reliability represent a composite of all qualified locations. For related documents such as package/tape drawings, part marking, and reliability data, see www.vishay.com/ppg?72789.



SOIC (NARROW): 8-LEAD JEDEC Part Number: MS-012







| | MILLIMETERS INCHES | | | HES | | |
|------------------------------|--------------------|------|-----------|-------|--|--|
| DIM | Min | Max | Min | Max | | |
| Α | 1.35 | 1.75 | 0.053 | 0.069 | | |
| A ₁ | 0.10 | 0.20 | 0.004 | 0.008 | | |
| В | 0.35 | 0.51 | 0.014 | 0.020 | | |
| С | 0.19 | 0.25 | 0.0075 | 0.010 | | |
| D | 4.80 | 5.00 | 0.189 | 0.196 | | |
| Е | 3.80 | 4.00 | 0.150 | 0.157 | | |
| е | 1.27 | BSC | 0.050 BSC | | | |
| Н | 5.80 | 6.20 | 0.228 | 0.244 | | |
| h | 0.25 | 0.50 | 0.010 | 0.020 | | |
| L | 0.50 | 0.93 | 0.020 | 0.037 | | |
| q | 0° | 8° | 0° | 8° | | |
| S | 0.44 | 0.64 | 0.018 | 0.026 | | |
| FCN: C-06527-Bey 11-Sen-06 | | | | | | |

DWG: 5498

Document Number: 71192 www.vishay.com 11-Sep-06



RECOMMENDED MINIMUM PADS FOR SO-8



Recommended Minimum Pads Dimensions in Inches/(mm)

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