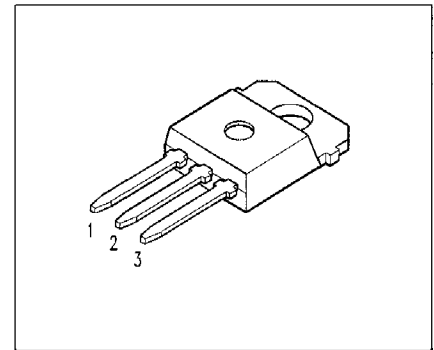


BUZ 355

- N channel
- Enhancement mode
- Avalanche-rated



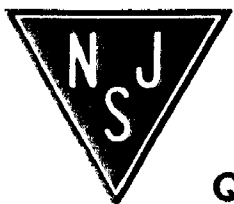
| Pin 1 | Pin 2 | Pin 3 |
|-------|-------|-------|
| G | D | S |

| Type | V _{DS} | I _D | R _{DS(on)} | Package |
|---------|-----------------|----------------|---------------------|-----------|
| BUZ 355 | 800 V | 6 A | 1.5 Ω | TO-218 AA |

Maximum Ratings

| Parameter | Symbol | Values | Unit |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---------------|------|
| Continuous drain current <i>T_C</i> = 29 °C | I _D | 6 | A |
| Pulsed drain current <i>T_C</i> = 25 °C | I _{Dpuls} | 24 | |
| Avalanche current, limited by <i>T_{jmax}</i> | I _{AR} | 5.1 | |
| Avalanche energy, periodic limited by <i>T_{jmax}</i> | E _{AR} | 15 | mJ |
| Avalanche energy, single pulse I _D = 6 A, V _{DD} = 50 V, R _{GS} = 25 Ω L = 37.5 mH, <i>T_j</i> = 25 °C | E _{AS} | 720 | |
| Gate source voltage | V _{GS} | ± 20 | V |
| Power dissipation <i>T_C</i> = 25 °C | P _{tot} | 125 | W |
| Operating temperature | <i>T_j</i> | -55 ... + 150 | °C |
| Storage temperature | <i>T_{stg}</i> | -55 ... + 150 | |
| Thermal resistance, chip case | R _{thJC} | ≤ 1 | K/W |
| Thermal resistance, chip to ambient | R _{thJA} | 75 | |
| DIN humidity category, DIN 40 040 | | E | |
| IEC climatic category, DIN IEC 68-1 | | 55 / 150 / 56 | |

NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.



Electrical Characteristics, at $T_j = 25^\circ\text{C}$, unless otherwise specified

| Parameter | Symbol | Values | | | Unit |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------|------|------|---------------|
| | | min. | typ. | max. | |
| Static Characteristics | | | | | |
| Drain- source breakdown voltage $V_{GS} = 0\text{ V}$, $I_D = 0.25\text{ mA}$, $T_j = 25\text{ }^\circ\text{C}$ | $V_{(BR)DSS}$ | 800 | - | - | V |
| Gate threshold voltage $V_{GS} = V_{DS}$, $I_D = 1\text{ mA}$ | $V_{GS(th)}$ | 2.1 | 3 | 4 | |
| Zero gate voltage drain current $V_{DS} = 800\text{ V}$, $V_{GS} = 0\text{ V}$, $T_j = 25\text{ }^\circ\text{C}$ $V_{DS} = 800\text{ V}$, $V_{GS} = 0\text{ V}$, $T_j = 125\text{ }^\circ\text{C}$ | I_{DSS} | - | - | 1 | μA |
| Gate-source leakage current $V_{GS} = 20\text{ V}$, $V_{DS} = 0\text{ V}$ | I_{GSS} | - | 10 | 100 | nA |
| Drain-Source on-resistance $V_{GS} = 10\text{ V}$, $I_D = 3.9\text{ A}$ | $R_{DS(on)}$ | - | 0.9 | 1.5 | Ω |

Electrical Characteristics, at $T_j = 25^\circ\text{C}$, unless otherwise specified

| Parameter | Symbol | Values | | | Unit |
|------------------------------------------------------------------------------------------------------------------------|--------------|--------|------|------|------|
| | | min. | typ. | max. | |
| Dynamic Characteristics | | | | | |
| Transconductance $V_{DS} \geq 2 \cdot I_D \cdot R_{DS(on)max}$, $I_D = 3.9\text{ A}$ | g_{fs} | 2.5 | 6.8 | - | S |
| Input capacitance $V_{GS} = 0\text{ V}$, $V_{DS} = 25\text{ V}$, $f = 1\text{ MHz}$ | C_{iss} | - | 1750 | 2350 | pF |
| Output capacitance $V_{GS} = 0\text{ V}$, $V_{DS} = 25\text{ V}$, $f = 1\text{ MHz}$ | C_{oss} | - | 190 | 290 | |
| Reverse transfer capacitance $V_{GS} = 0\text{ V}$, $V_{DS} = 25\text{ V}$, $f = 1\text{ MHz}$ | C_{rss} | - | 100 | 150 | |
| Turn-on delay time $V_{DD} = 30\text{ V}$, $V_{GS} = 10\text{ V}$, $I_D = 2.1\text{ A}$ $R_{GS} = 50\ \Omega$ | $t_{d(on)}$ | - | 25 | 40 | ns |
| Rise time $V_{DD} = 30\text{ V}$, $V_{GS} = 10\text{ V}$, $I_D = 2.1\text{ A}$ $R_{GS} = 50\ \Omega$ | t_r | - | 130 | 200 | |
| Turn-off delay time $V_{DD} = 30\text{ V}$, $V_{GS} = 10\text{ V}$, $I_D = 2.1\text{ A}$ $R_{GS} = 50\ \Omega$ | $t_{d(off)}$ | - | 400 | 530 | |
| Fall time $V_{DD} = 30\text{ V}$, $V_{GS} = 10\text{ V}$, $I_D = 2.1\text{ A}$ $R_{GS} = 50\ \Omega$ | t_f | - | 130 | 175 | |

Electrical Characteristics, at $T_j = 25^\circ\text{C}$, unless otherwise specified

| Parameter | Symbol | Values | | | Unit |
|------------------------------------------------------------------------------------------------|----------|--------|------|------|---------------|
| | | min. | typ. | max. | |
| Reverse Diode | | | | | |
| Inverse diode continuous forward current $T_C = 25^\circ\text{C}$ | I_S | - | - | 4 | A |
| Inverse diode direct current, pulsed $T_C = 25^\circ\text{C}$ | I_{SM} | - | - | 16 | |
| Inverse diode forward voltage $V_{GS} = 0\text{ V}, I_F = 12\text{ A}$ | V_{SD} | - | 0.95 | 1.4 | V |
| Reverse recovery time $V_R = 100\text{ V}, I_F = I_S, di_F/dt = 100\text{ A}/\mu\text{s}$ | t_{rr} | - | 0.3 | - | μs |
| Reverse recovery charge $V_R = 100\text{ V}, I_F = I_S, di_F/dt = 100\text{ A}/\mu\text{s}$ | Q_{rr} | - | 2.5 | - | μC |