# PRODUCT SPECIFICATIONS

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**TYPE: BUZ53A**

**CASE OUTLINE: TO-204AA (TO-3)**

## HIGH VOLTAGE POWER MOSFET
## N-CHANNEL

**ABSOLUTE MAXIMUM RATING:**

| | | | |
|---|---|---|---|
| Drain – Source Voltage | $V_{DSS}$ | 1000 | Vdc |
| Drain – Gate Voltage | $V_{DGR}$ | 1000 | Vdc |
| Drain Current – Continuous | $I_D$ | 2.6 | Adc |
| Drain Current – Pulsed | $I_{DM}$ | 10 | Adc |
| Gate – Source Voltage | $V_{GS}$ | ±20 | Vdc |
| Power Dissipation | $P_D$ | 78 | Watts |
| Inductive Current | $I_L$ | | Adc |
| Operating and Storage Temperature | $T_J$ & $T_{stg}$ | -55 to +150 | °C |
| Lead Temperature From Case | $T_L$ | | °C |

**ELECTRICAL CHARACTERISTICS TA @ 25°C**

| Parameters | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Drain Source Breakdown Voltage | $BV_{DSS}$ | $V_{GS}$ = 0V, $I_D$ = .25mA | 1000 | | | Vdc |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$ = $V_{GS}$, $I_D$ = 1.0mA | 2.1 | | 4.0 | Vdc |
| Gate – Body Leakage Current | $I_{GSS}$ | $V_{GS}$ = ± 20V, $V_{DS}$ = 0V | | | 100 | nA |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$ = 1000V, $V_{GS}$ = 0V,<br>$V_{DS}$ = 1000V, $V_{GS}$ = 0V, $T_J$ = 125°C | | | 0.25<br>1.0 | mA<br>mA |
| On State Drain Current | $I_{D(on)}$ | | | | | Adc |
| Drain Source On-Resistance | $r_{DS(on)}$ | $V_{GS}$ = 10V, $I_D$ = 1.5A | | | 5.0 | Ohms |
| Forward Transconductance | $g_{FS}$ | $V_{DS}$ = 25V, $I_D$ = 1.5A | 0.7 | | | mhos |
| Drain-Source On Voltage | $V_{DS(on)}$ | | | | | Vdc |
| Drain-Source-On Voltage | $V_{DS(on)}$ | | | | | Vdc |
| Input Capacitance | $C_{iss}$ | $V_{GS}$ = 0V, $V_{DS}$ = 25V, f = 1 MHz | | | 2100 | pF |
| Output Capacitance | $C_{oss}$ | | | | 120 | pF |
| Reverse Transfer Capacitance | $C_{rss}$ | | | | 55 | pF |

TYPE: **BUZ53A**

| Drain Source Diode Characteristics | | Symbol | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| Forward On Voltage | $I_F$ = 5.2A, $V_{GS}$ = 0V | $V_{SD}$ | | | 1.3 | Vdc |
| Reverse Recovery Time | $I_F$ = 2.6A | $t_{rr}$ | | 2000 | | ns |
| Reverse Recovery Charge | $di_F/dt$ = 100A/µs, $V_{GS}$ = 0V, $V_R$ = 100V | $Q_{rr}$ | | 15 | | nC |
| Total Gate Charge | | $Q_g$ | | | | nC |
| Gate – Source Charge | | $Q_{gs}$ | | | | nC |
| Gate – Drain Charge | | $Q_{gd}$ | | | | nC |

| Switching Characteristics | | Symbol | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| Turn-On Time | | $t_{on}$ | | | | |
| Turn-Off Time | | $t_{off}$ | | | | |
| Delay Time (Turn On) | $V_{DD}$ = 30V, $I_D$ = 2.0A<br>$V_{GS}$ = 10V, $R_{GS}$ = 50Ω<br>Rgen = 50Ω | $t_{d(on)}$ | | | 45 | ns |
| Rise Time | | $t_r$ | | | 60 | ns |
| Delay Time (Turn Off) | | $t_{d(off)}$ | | | 140 | ns |
| Fall Time | | $t_f$ | | | 80 | ns |

| Thermal Characteristics | Symbol | | | Units |
|---|---|---|---|---|
| Junction To Case | $R_{\theta JC}$ | | | °C/W |
| Junction To Ambient | $R_{\theta JA}$ | | | °C/W |
| Internal Package Inductance | Symbol | Typ | Max | Units |
| Internal Drain Inductance | $L_d$ | 5.0 | | nH |
| Internal Source Inductance | $L_S$ | 12.5 | | nH |