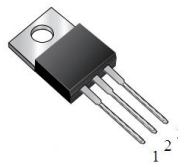
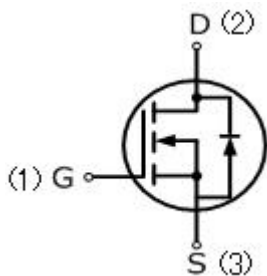


10N65(F,B,H)

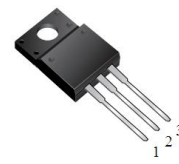
10A mps,650 Volts N-CHANNEL MOSFET

FEATURE

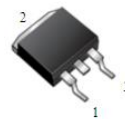
- 10A,650V, $R_{DS(ON)}=0.85\ \Omega$ @ $V_{GS}=10V/5A$
- Low gate charge
- Low C_{iss}
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability



TO-220AB
10N65



ITO-220AB
10N65F



TO-263
10N65B



TO-262
10N65H

Absolute Maximum Ratings ($T_C=25^\circ\text{C}$, unless otherwise noted)

| Parameter | Symbol | 10N65 | UNIT |
|---|------------------|-------------|------------------|
| Drain-Source Voltage | V_{DSS} | 650 | V |
| Gate-Source Voltage | V_{GSS} | ± 30 | |
| Continuous Drain Current | I_D | 10 | A |
| Pulsed Drain Current (Note 1) | I_{DM} | 40 | |
| Single Pulse Avalanche Energy (Note 2) | E_{AS} | 300 | mJ |
| Avalanche Current (Note 1) | I_{AR} | 10 | A |
| Repetitive Avalanche Energy (Note 1) | E_{AR} | 30 | mJ |
| Reverse Diode dV/dt (Note 3) | dv/dt | 5.5 | V/ns |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -55 to +150 | $^\circ\text{C}$ |
| Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds | T_L | 260 | $^\circ\text{C}$ |
| Mounting Torque | 6-32 or M3 screw | 10 | lbf • in |
| | | 1.1 | N • m |

Thermal Characteristics

| Parameter | Symbol | ITO-220 | TO-220 | TO-262 TO-263 | Units |
|---------------------------|------------|---------|--------|------------------|---------------------------|
| Maximum Junction-to-Case | R_{thJC} | 1.0 | 0.8 | 0.8 | $^\circ\text{C}/\text{W}$ |
| Maximum Power Dissipation | P_D | 125 | 155 | 155 | W |

| Electrical Characteristics ($T_c=25^\circ\text{C}$, unless otherwise noted) | | | | | | |
|--|--------------------------------|---|-----|------|------|--------------------|
| Parameter | Symbol | Test Conditions | Mix | Typ | Max | Units |
| Off Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | BV_{DSS} | $V_{GS}=0V, I_D=250\mu A$ | 650 | — | — | V |
| Breakdown Temperature Coefficient | $\Delta BV_{DSS} / \Delta T_J$ | Reference to 25°C , $I_D=250\mu A$ | — | 0.6 | — | $V/^\circ\text{C}$ |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=650V, V_{GS}=0V$ | — | — | 1 | μA |
| Gate-Body Leakage Current, Forward | I_{GSSF} | $V_{GS}=30V, V_{DS}=0V$ | — | — | 100 | nA |
| Gate-Body Leakage Current, Reverse | I_{GSSR} | $V_{GS}=-30V, V_{DS}=0V$ | — | — | -100 | nA |
| On Characteristics | | | | | | |
| Gate-Source Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=0V, I_D=250\mu A$ | 2 | — | 4 | V |
| Drain-Source On-State Resistance | $R_{DS(on)}$ | $V_{GS}=10V, I_D=5A$ | — | 0.71 | 0.85 | Ω |
| Dynamic Characteristics | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS}=25V, V_{GS}=0V,$ $f=1.0\text{MHz}$ | — | — | 1500 | pF |
| Output Capacitance | C_{oss} | | — | — | 180 | pF |
| Reverse Transfer Capacitance | C_{rss} | | — | — | 15 | pF |
| Switching Characteristics | | | | | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DD}=300V, I_D=10A,$ $R_g=25\Omega$ (Note4,5) | — | 20 | — | ns |
| Turn-On Rise Time | t_r | | — | 20 | — | ns |
| Turn-Off Delay Time | $t_{d(off)}$ | | — | 55 | — | ns |
| Turn-Off Fall Time | t_f | | — | 30 | — | ns |
| Total Gate Charge | Q_g | $V_{DS}=520V, I_D=10A,$ $V_{GS}=10V,$ (Note4,5) | — | 60 | — | nC |
| Gate-Source Charge | Q_{gs} | | — | 12 | — | nC |
| Gate-Drain Charge | Q_{gd} | | — | 28 | — | nC |
| Drain-Source Body Diode Characteristics and Maximum Ratings | | | | | | |
| Continuous Diode Forward Current | I_S | | — | — | 10 | A |
| Pulsed Diode Forward Current | I_{SM} | | — | — | 40 | A |
| Diode Forward Voltage | V_{SD} | $I_S=10A, V_{GS}=0V$ | — | — | 1.5 | V |
| Reverse Recovery Time | t_{rr} | $V_{GS}=0V, I_S=10A,$ | — | 600 | — | ns |
| Reverse Recovery Charge | Q_{rr} | $dI_F/dt=100A/\mu s,$ (Note4) | — | 4.3 | — | μC |

Notes

1. Repetitive Rating; pulse width limited by maximum junction temperature.
2. $V_{DD}=50V$, starting, $L=5.5\text{mH}$, $R_g=25\Omega$, $I_{AS}=10A$, $T_J=25^\circ\text{C}$.
3. $I_{SD} \leq I_D$, $dI/dt=200A/\mu s$, $V_{DD} \leq BV_{DSS}$, starting $T_J=25^\circ\text{C}$.
4. Pulse width $\leq 300\mu s$; duty cycle $\leq 2\%$.
5. Repetitive rating; pulse width limited by maximum junction temperature.