## Feature

- High Speed Power Switching, Logic Level
- Enhanced Body diode dv/dt capability
- Enhanced Avalanche Ruggedness
- 100% UIS Tested, 100% Rg Tested
- Lead Free, Halogen Free

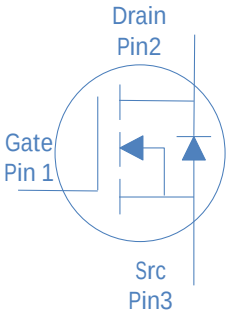
| | | | | |
|---|---|---|---|---|
| $V_{DS}$ | | | 100 | V |
| $R_{DS(on),typ}$ | TO-263 | $V_{GS}$=10V | 22.7 | mΩ |
| $R_{DS(on),typ}$ | | $V_{GS}$=4.5V | 27.7 | mΩ |
| $R_{DS(on),typ}$ | TO-220 | $V_{GS}$=10V | 23.0 | mΩ |
| $R_{DS(on),typ}$ | | $V_{GS}$=4.5V | 28 | mΩ |
| $I_{D\ (Sillicon\ Limited)}$ | | | 31 | A |

## Application

- Synchronous Rectification in SMPS
- Hard Switching and High Speed Circuit
- DC/DC in Telecoms and Inductrial

TO-263

TO-220




| Part Number | Package | Marking |
|---|---|---|
| HGB290N10SL | TO-263 | GB290N10SL |
| HGP290N10SL | TO-220 | GP290N10SL |

### Absolute Maximum Ratings at $T_j$

| Parameter | Symbol | Conditions | Value | Unit |
|---|---|---|---|---|
| Continuous Drain Current (Silicon Limited) | $I_D$ | $T_C$ | 31 | A |
| | | $T_C$ | 22 | |
| Drain to Source Voltage | $V_{DS}$ | - | 100 | V |
| Gate to Source Voltage | $V_{GS}$ | - | ±20 | V |
| Pulsed Drain Current | $I_{DM}$ | - | 100 | A |
| | $_{AS}$ | L=0.4mH, $T_C$ | 20 | mJ |
| | $P_D$ | $T_C$ | 63 | W |
| Operating and Storage Temperature | $T_J$, $T_{stg}$ | - | -55 to175 | |

### Absolute Maximum Ratings

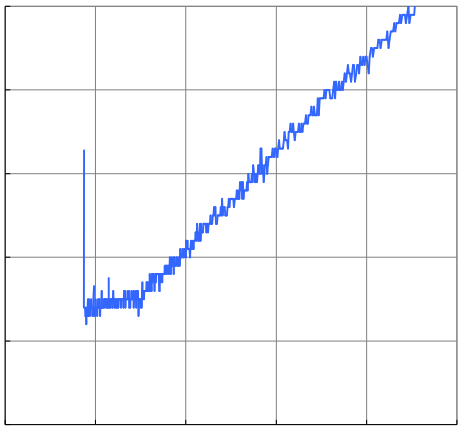
| Parameter | Symbol | Max | Unit |
|---|---|---|---|
| | $R_{\theta JA}$ | 50 | |
| | $R_{\theta JC}$ | 2.4 | |

j

| Parameter | Symbol | Conditions | | Value min | Value typ | Value max | Unit |
|---|---|---|---|---|---|---|---|
| | $V_{(}$ | $V_{GS}$=0V, $I_D$=250μA | | 100 | - | - | V |
| | | $V_{GS}$=$V_{DS}$, $I_D$=250μA | | 1.4 | 2 | 2.4 | |
| Zero Gate Voltage Drain Current | S | $V_{GS}$=0V, $V_{DS}$=100V, $T_j$ | | - | - | 1 | μA |
| | | $V_{GS}$=0V, $V_{DS}$=100V, $T_j$ | | - | - | 100 | |
| Gate to Source Leakage Curre | $I_{GSS}$ | $V_{GS}$=±20V, $V_{DS}$=0V | | - | - | ±100 | nA |
| Drain to Source on Resista | $R_{DS(on)}$ | $V_{GS}$=10V, $I_D$=20A | TO-263 | - | 22.7 | 28.7 | mΩ |
| | | $V_{GS}$=4.5V, $I_D$=10A | TO-263 | - | 27.7 | 35.7 | |
| Drain to Source on Re e | $R_{DS(on)}$ | $V_{GS}$=10V, $I_D$=20A | TO-220 | - | 23 | 29 | mΩ |
| | | $V_{GS}$=4.5V, $I_D$=10A | TO-220 | - | 28 | 36 | |
| Transconductance | g | $V_{DS}$=5V, $I_D$=20A | | - | 20 | - | S |
| Gate Resistance | $R_G$ | $V_{GS}$=0V, $V_{DS}$ | | - | 1.5 | - | Ω |

| | | | | | | |
|---|---|---|---|---|---|---|
| Input ance | $C_{iss}$ | $V_{GS}$=0V, $V_{DS}$ | - | 930 | - | |
| Ou acitance | $C_{oss}$ | | - | 62 | - | |
| | $C_{rss}$ | | - | 5.3 | - | |
| | $Q_g$(10V) | $V_{DD}$=50V, $I_D$=8A, $V_{GS}$=10V | - | 13.5 | - | nC |
| | $Q_g$(4.5V) | | - | 6.5 | - | |
| | $Q_{gs}$ | | - | 2.8 | - | |
| | $Q_{gd}$ | | - | 2.0 | - | |
| Turn on Delay Time | $t_{d(on)}$ | $V_{DD}$=50V, $I_D$=8A, $V_{GS}$=10V, $R_G$=10Ω, | - | 7 | - | ns |
| Rise time | $t_r$ | | - | 4 | - | |
| | t | | - | 20 | - | |
| | t | | - | 4 | - | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | $V_{SD}$ | $V_{GS}$=0V, I =20A | - | 0.9 | 1.2 | V |
| Reverse Recovery Time | $t_{rr}$ | $V_R$=50V, I =8A, dI μs | - | 36 | - | ns |
| | $Q_{rr}$ | | - | 100 | - | nC |



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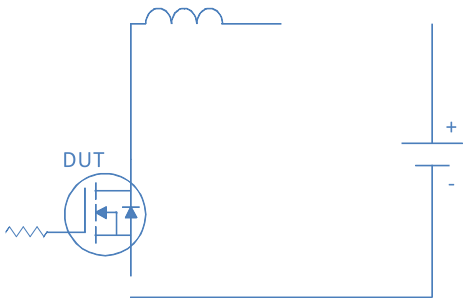
|  | |

| Diode Recovery Test | |
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| | |

Package Ou

| | Min | Nom | Max |
|---|---|---|---|
| | 9.66 | 9.97 | 10.28 |
| | 9.80 | 10.00 | 10.20 |
| | 15.60 | 15.70 | 15.80 |
| | 12.70 | 13.48 | 14.27 |
| | 4.30 | 4.50 | 4.70 |
| | 9.00 | 9.20 | 9.40 |
| | | 2.54 | |
| | 1.32 | 1.52 | 1.72 |
| | 0.70 | 0.82 | 0.95 |
| | 0.45 | 0.52 | 0.60 |
| | 0 | 3.60 | 3.70 |
| | | 2.80 | 2.90 |
| | | 15.97 | 16.25 |
| | | 40 | 2.60 |
| | | | 1.40 |
| | | | 6.80 |