TO-263 Ł N ڜ ٦

N-CHANNEL MOSFET in a TO-263 Plastic Package.

$V_{DS}$=60V $I_D$=182A

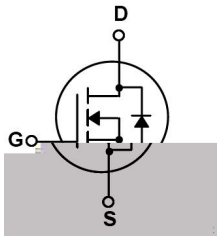
$R_{DS(on)}$@10V≤3.0mΩ(Type.2.8mΩ)

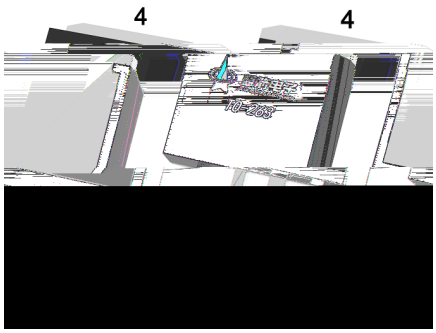
$R_{DS(on)}$@6V≤5.0mΩ(Type.3.5mΩ)

٤ DEF0T434 ڑ ، Ł Qualified to AEC-Q101 Standards for High Reliability, HF Product.

ڑ Ł EPV ' ڃ Ł

High frequency switching and synchronous rectification,BMS,Motor, Meet the stringent requirements of automotive applications.




PIN1 G PIN 2 4 D PIN 3 S

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See Marking Instructions.

| Parameter | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Drain-Source Voltage | | $V_{DSS}$ | 60 | V |
| Drain Current | | $I_D$(Tc=25 ) | 182 | A |
| Pulsed Drain Current | | $I_{DM}$ | 530 | A |
| Gate-Source Voltage | | $V_{GS}$ | ± 20 | V |
| Single Pulsed Avalanche Energy(L=0.5mH) | | $E_{AS}$ | 946 | mJ |
| Avalanche Current | | $I_{AS}$ | 43.5 | A |
| Total Power Dissipation | | $P_D$(Tc=25 ) | 180 | W |
| Junction and Storage Temperature Range | | $T_J$,$T_{STG}$ | -55 to 150 | |
| Thermal Resistance-Junction to Ambient | t ≤ 10s | $R_{\theta JA}$ | 20 | /W |
| | Steady-State | | 73 | |
| Thermal Resistance-Junction to Case | Steady-State | $R_{\theta JC}$ | 0.69 | |

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage | $BV_{DSS}$ | $V_{GS}$=0V $I_D$=250μA | 60 | 71 | | V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=60V $V_{GS}$=0V | | | 1 | μA |
| Gate-Body Leakage Current Forward | $I_{GSS}$ | $V_{GS}$=±20V $V_{DS}$=0V | | | ±100 | nA |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$=$V_{GS}$ $I_D$=250μA | 2 | 2.95 | 4 | V |
| Static Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}$=10V $I_D$=20A | | 2.8 | 3.0 | mΩ |
| | $R_{DS(on)}$ | $V_{GS}$=6V $I_D$=10A | | 3.5 | 5.0 | |
| Forward On Voltage | $V_{SD}$ | $V_{GS}$=0V $I_S$=1A | | | 1.2 | V |
| Gate resistance | $R_g$ | f=1MHz | | 1.7 | | Ω |
| Input Capacitance | $C_{iss}$ | $V_{DS}$=25V $V_{GS}$=0V f=1MHz | | 6200 | | pF |
| Output Capacitance | $C_{oss}$ | | | 1710 | | |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 180 | | |
| Total Gate Charge | $Q_g$ | $V_{GS}$=10V, $V_{DS}$=30V, $I_D$=20A | | 43.5 | | nC |
| Gate Source Charge | $Q_{gs}$ | | | 13.2 | | |
| Gate Drain Charge | $Q_{gd}$ | | | 11 | | |

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Turn-On Delay Time | $t_{d(on)}$ | $V_{GS}$=10V $V_{DS}$=30V<br>$R_L$=1.5Ω $R_{GEN}$=3Ω | | 15.7 | | ns |
| Turn-On Rise Time | $t_r$ | | | 16.4 | | |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 35 | | |
| Turn-Off Fall Time | $t_f$ | | | 15 | | |

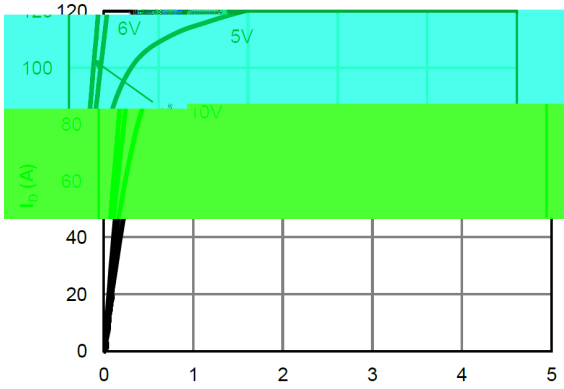



Figure 1: On-Region Characteristics

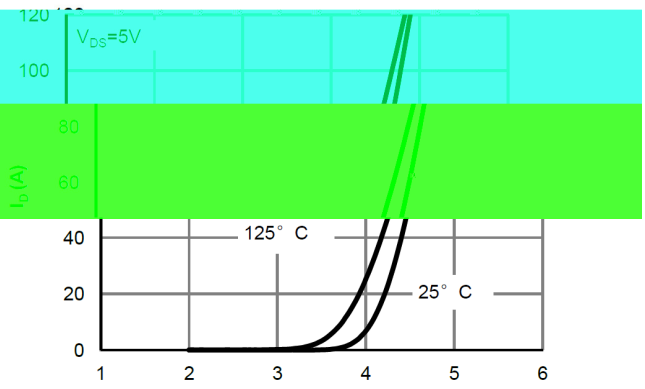



Figure 2: Transfer Characteristics

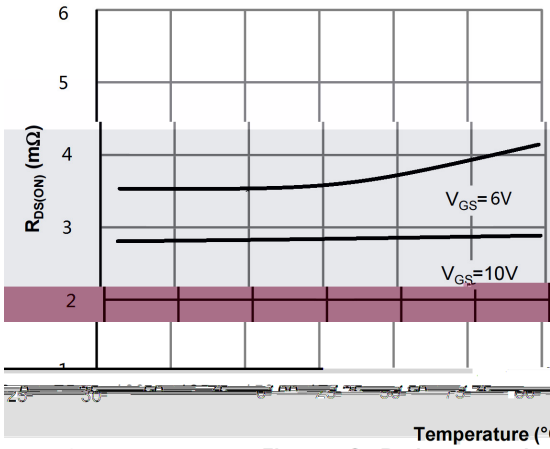



Figure 4: On-Resistance vs. Junction Temperature

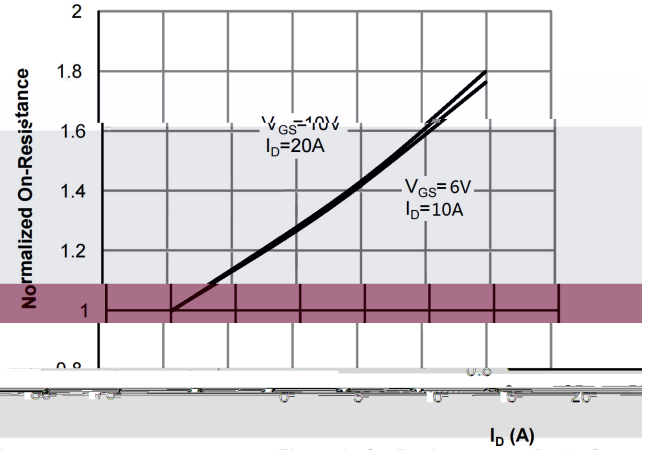



Figure 3: On-Resistance vs. Drain Current

Voltage

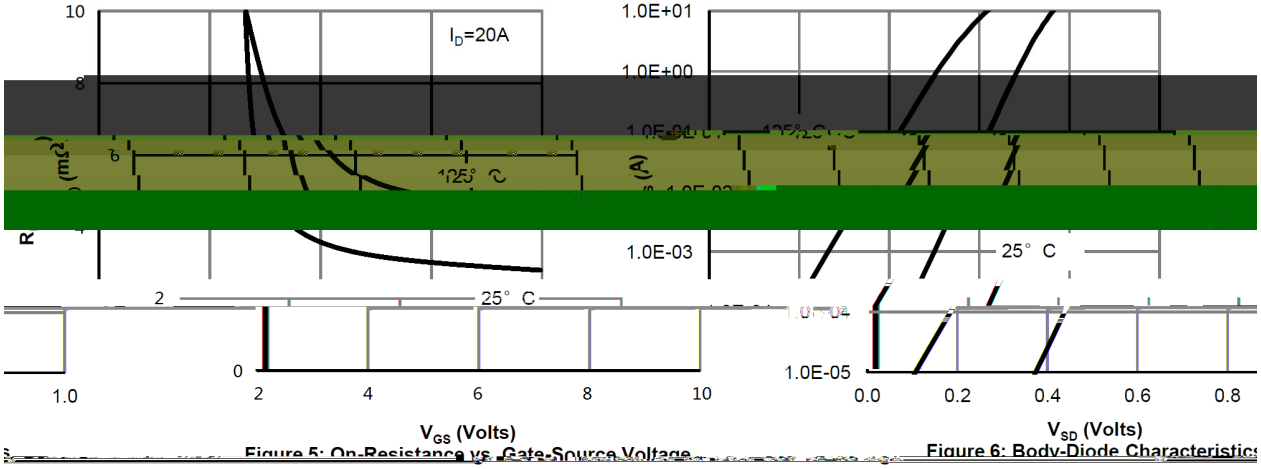
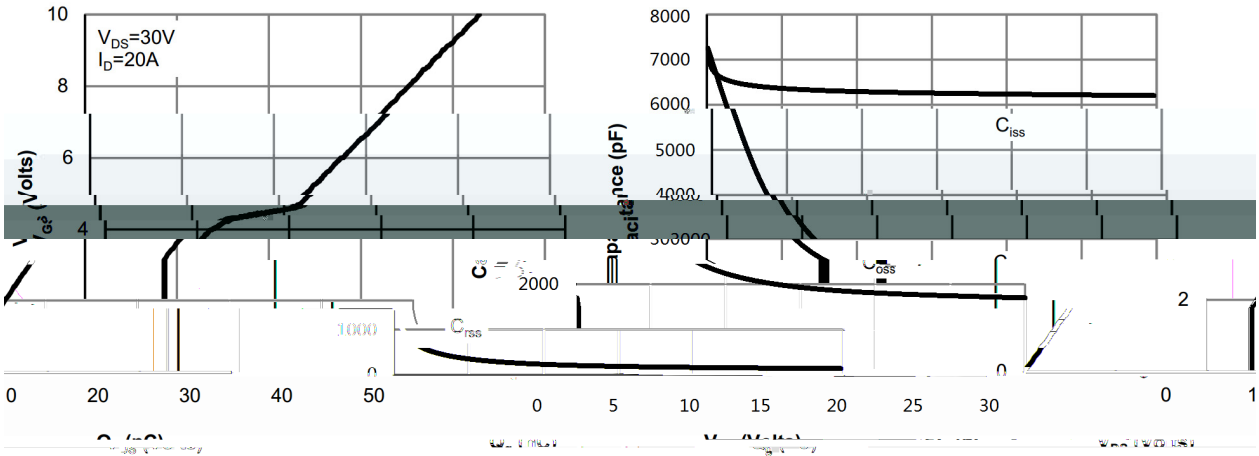



Figure 5: On-Resistance vs. Gate-Source Voltage



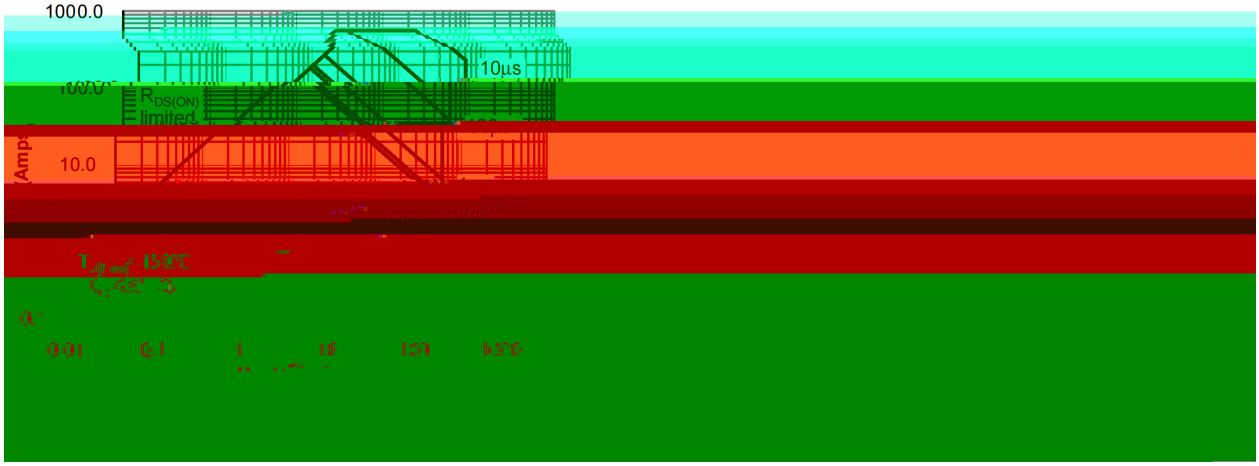

Figure 6: Body-Diode Characteristics

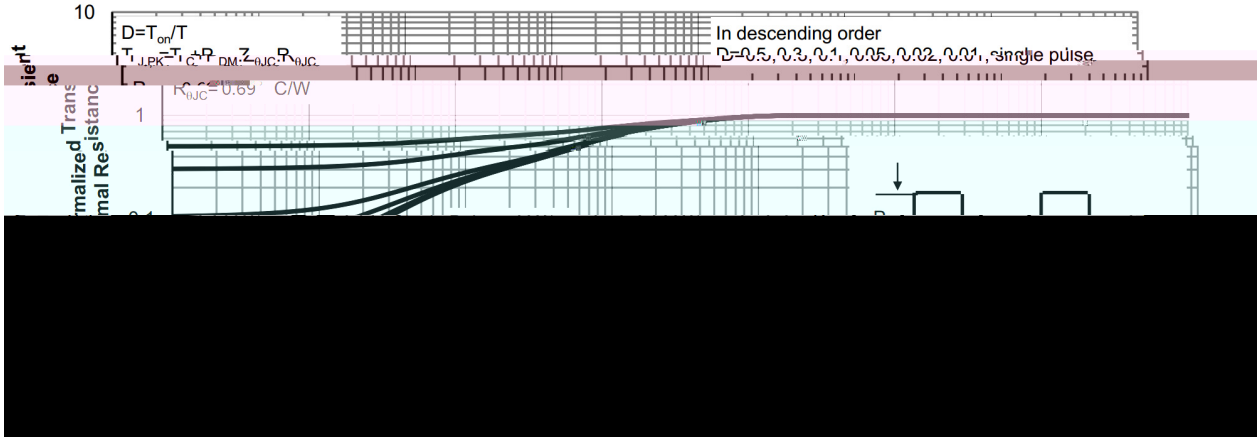


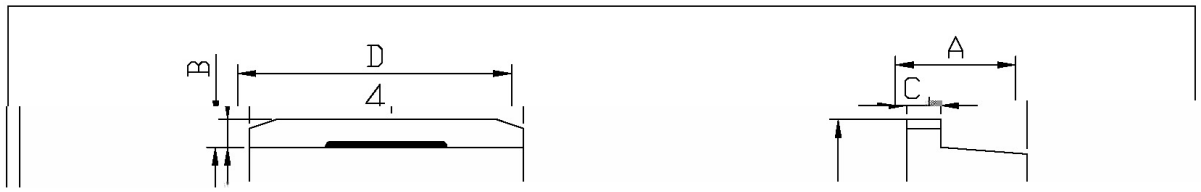

ure 8: Capacitance Characteristics

Figure 7: Gate-Charge Characteristics

Fig



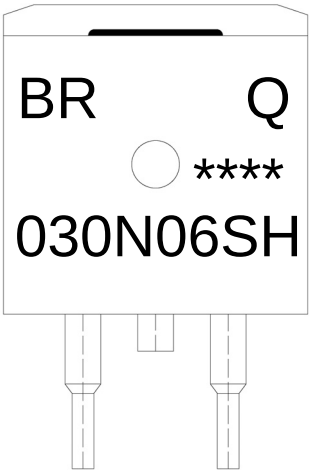






单位：mm

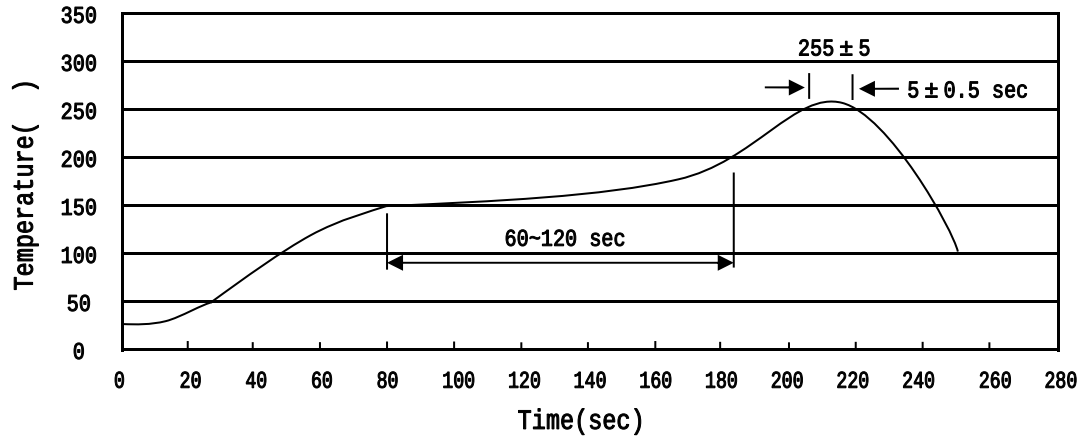
| Symbol | Dimensions In Millimeters | | Symbol | Dimensions In Millimeters | |
|---|---|---|---|---|---|
| | Min | Max | | Min | Max |
| A | 4.30 | 4.70 | E | 9.00 | 9.40 |
| B | 1.00 | 1.40 | e1 | 2.34 | 2.74 |
| b | 0.70 | 0.90 | e2 | 4.88 | 5.28 |
| b1 | 1.15 | 1.35 | L1 | 15.00 | 16.00 |
| b2 | 0.40 | 0.60 | L2 | 2.24 | 2.84 |
| C | 1.20 | 1.40 | L3 | 1.20 | 1.60 |
| D | 9.80 | 10.20 | | | |




Note:

| | |
|---|---|
| BR: | Company Code |
| Q: | Automobile halogen-free product Code |
| 030N06SH: | Product Type Code |
| ****: | Lot No. Code, code change with Lot No |

## Temperature Profile for IR Reflow Soldering(Pb-Free)




ب Note:

1 أ 150 200 ژ 60 120sec; 1.Preheating:150~200 , Time:60~120sec.

2 255±5 ژ ٨ 5±0.5sec; 2.Peak Temp.:255±5 , Duration:5±0.5sec.

3 ٧ ھ 2 10 /sec. 3. Cooling Speed: 2~10 /sec.

260±5 ژ 10±1 sec. Temp.:260±5 Time:10±1 sec

` Ь / REEL

| Package Type | Units | | | | | Dimension | | (unit mm³) |
|---|---|---|---|---|---|---|---|---|
| | Units/Reel / | Reels/Inner Box / | Units/Inner Box / | Inner Boxes/Outer Box / | Units/Outer Box / | Reel | Inner Box | Outer Box |
| TO-263 | 800 | 1 | 800 | 6 | 4,800 | 13 ×24 | 360×360×50 | 380×335×366 |

٦ Ь / TUBE

| Package Type | Units | | | | | Dimension | | (unit mm³) |
|---|---|---|---|---|---|---|---|---|
| | Units/Tube / | Tubes/Inner Box / | Units/Inner Box / | Inner Boxes/Outer Box / | Units/Outer Box / | Tube | Inner Box | Outer Box |
| TO-263 | 50 | 20 | 1,000 | 5 | 5,000 | 532×33×7.0 | 555×164×50 | 575×290×180 |