## / Descriptions

GIQ4339060 ṂṂ Ḅ S ॐ PRV ʃ ѽ Ẓ ٦

P-Channel Enhancement Mode Field Effect Transistor in a DFN1006-3L Plastic Package.

## / Features

$V_{DS}$=-20V ψ $I_D$=-0.7A ψ $V_{GS}$=±12V

$R_{DS(on)}$@-4.5V≤520mΩ(Type.390mΩ)

$R_{DS(on)}$@-2.5V≤780mΩ(Type.530mΩ)

$R_{DS(on)}$@-1.8V≤1100mΩ(Type.700mΩ)

ESD-HBM≥2000V

ɳ ғ β HF Product.

## / Applications

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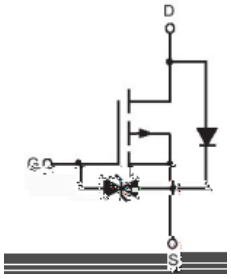
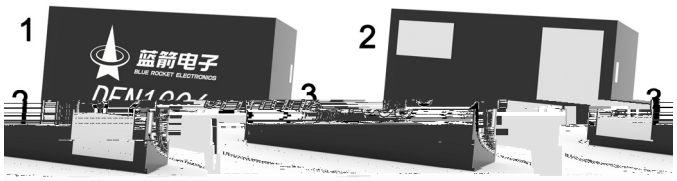
Lqwhqghg iru xvh lq jhqhud0 sxusrvh vzlwfklqj dqg skdvh frqwur0 dss0lfdwlrqv1

## / Equivalent Circuit




## / Pinning




Pin1:G Pin2:S Pin3:D

## / Marking

ð м ٦ ب ˝ See Marking Instructions.

## / Absolute Maximum Ratings(Ta=25 )

| v Ѽ<br>Parameter | | ٩ N<br>Symbol | Ѽ Ё<br>Rating | D Ђ<br>Unit |
|---|---|---|---|---|
| Drain-Source Voltage | | $V_{DSS}$ | -20 | V |
| Gate-Source Voltage | | $V_{GSS}$ | ° 12 | V |
| Drain Current – Continuous | | $I_D$ | -0.7 | A |
| Pulsed Drain Current | | $I_{DM}$ | -2 | A |
| Power Dissipation | | $P_D$ | 0.9 | W |
| Storage Temperature Range | | $T_{stg}$ | -55 to 150 | ł |
| Thermal resistance, junction - ambient | t ⩽ 10s | $R_{\theta JA}$ | 100 | ł /W |
| | Steady-State | | 140 | |

## / Electrical Characteristics(Ta=25 )

| v Ѽ<br>Parameter | ٩ N<br>Symbol | ٱ ː ţ ţ<br>Test Conditions | ѡ ņ Ё<br>Min | Ɛ ʒ Ё<br>Typ | ѡ ᶻ Ё<br>Max | D Ђ<br>Unit |
|---|---|---|---|---|---|---|
| Drain–Source Breakdown Voltage | $V_{DSS}$ | $V_{GS}$=0 $I_D$=-250uA | -20 | -22 | | V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{GS}$=0 $V_{DS}$=-20V | | | -1 | μA |
| Gate–Body Leakage | $I_{GSS}$ | $V_{DS}$=0V $V_{GS}$=±12V | | | ±10 | μA |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$=$V_{GS}$ $I_D$=-250uA | -0.3 | -0.6 | -1.0 | V |
| Static Drain-Source On-Resistance | $R_{DS(on)(1)}$ | $V_{GS}$=-4.5V $I_D$=-500mA | | 390 | 520 | mΩ |
| | $R_{DS(on)(2)}$ | $V_{GS}$=-2.5V $I_D$=-200mA | | 530 | 780 | mΩ |
| | $R_{DS(on)(3)}$ | $V_{GS}$=-1.8V $I_D$=-100mA | | 700 | 1100 | mΩ |
| | $R_{DS(on)(4)}$ | $V_{GS}$=-1.5V $I_D$=-50mA | | 870 | | mΩ |
| | $R_{DS(on)(5)}$ | $V_{GS}$=-1.2V $I_D$=-20mA | | 1295 | | mΩ |
| Drain-Source Diode Forward Voltage | $V_{SD}$ | $V_{GS}$=0V $I_S$=-250mA | | | -1.2 | V |
| Gate Resistance | $R_g$ | $V_{GS}$=0V $V_{DS}$=0V f=1MHz | | 60 | | Ω |
| Input Capacitance | $C_{iss}$ | $V_{DS}$=-10V $V_{GS}$=0V f=1.0MHz | | 79 | | pF |
| Output Capacitance | $C_{oss}$ | | | 15 | | |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 13 | | |
| Total Gate Charge | $Q_g$ | $V_{GS}$=-4.5V, $V_{DS}$=-10V, $I_D$=-0.4A | | 0.77 | | nC |
| Gate Source Charge | $Q_{gs}$ | | | 0.17 | | |
| Gate Drain Charge | $Q_{gd}$ | | | 0.23 | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{GS}$=-4.5V $V_{DS}$=-10V $R_L$=25Ω $R_{GEN}$=3Ω | | 6.2 | | ns |
| Turn-On Rise Time | $t_r$ | | | 5.3 | | ns |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 23 | | ns |
| Turn-Off Fall Time | $t_f$ | | | 8.1 | | ns |

## / Electrical Characteristic Curve

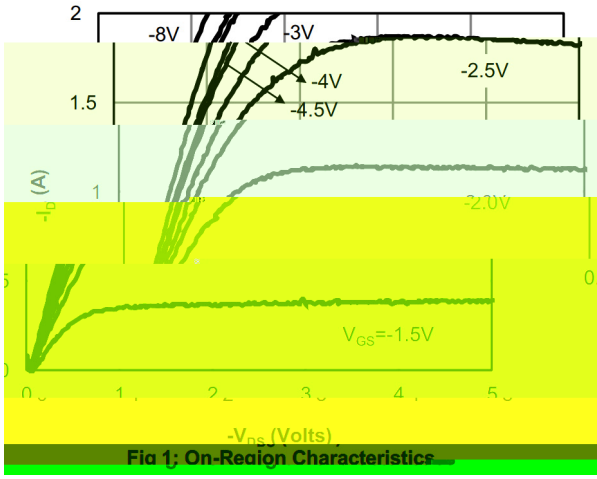



Fig 1: On-Region Characteristics

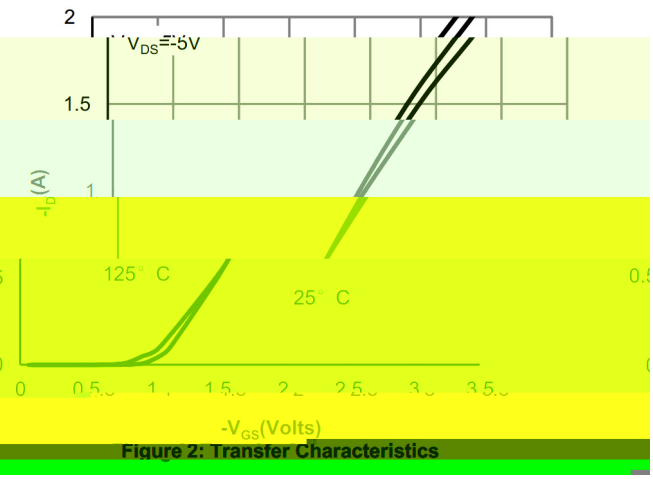



Figure 2: Transfer Characteristics

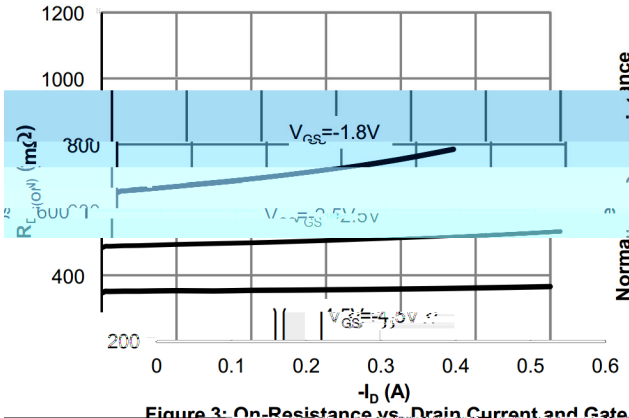
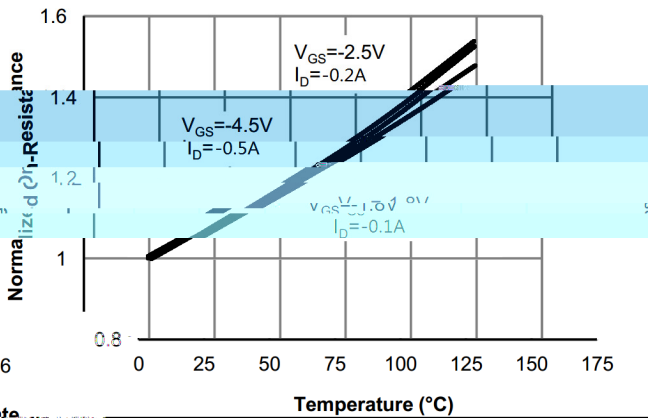



Figure 3: On-Resistance vs. Drain Current and Gate Voltage



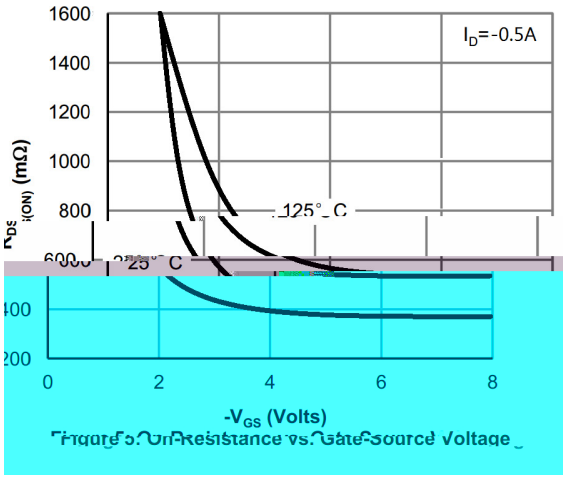




Figure 5: On-Resistance vs. Gate-Source Voltage

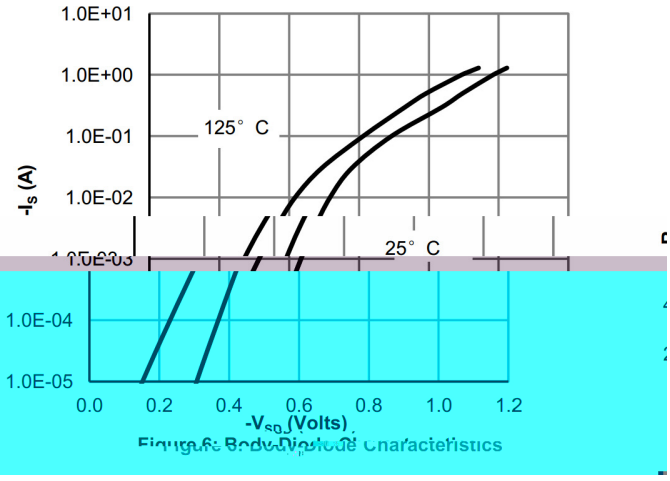
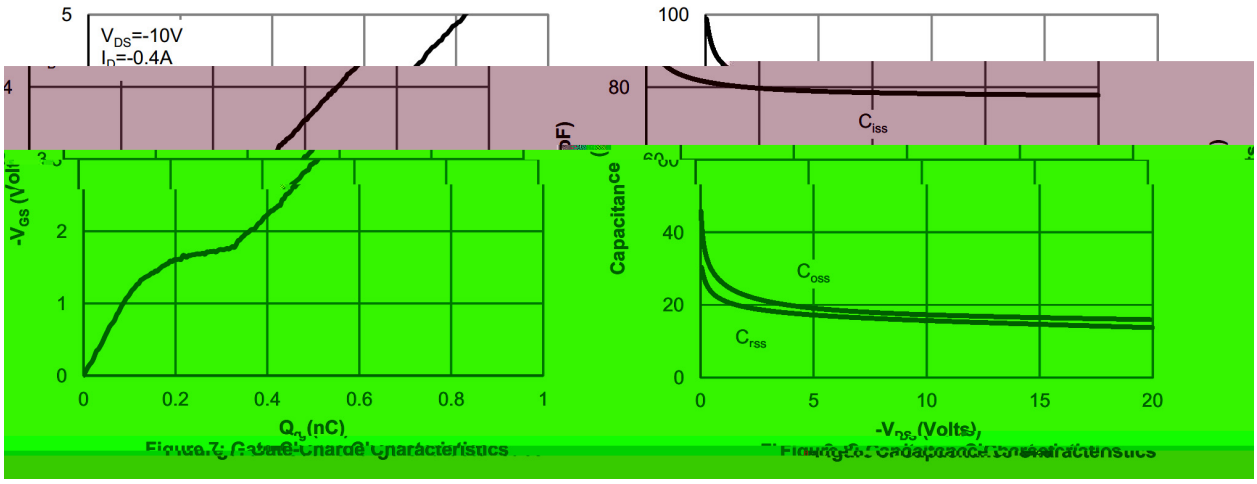



Figure 6: Body Diode Characteristics

## / Electrical Characteristic Curve



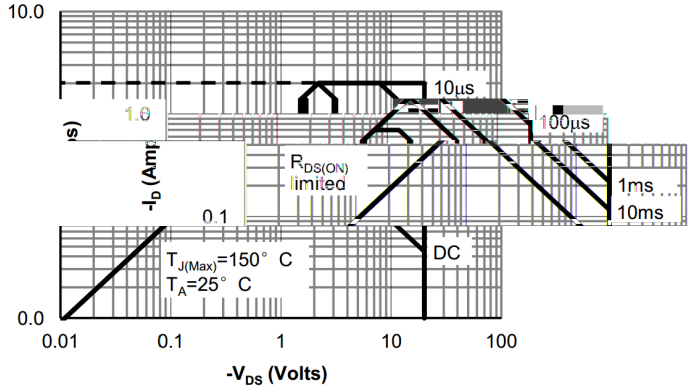
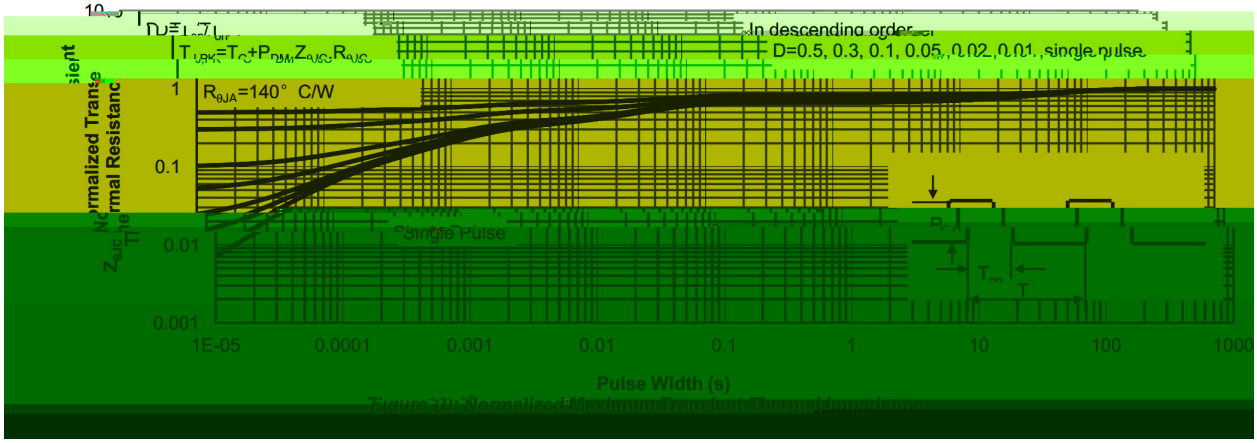
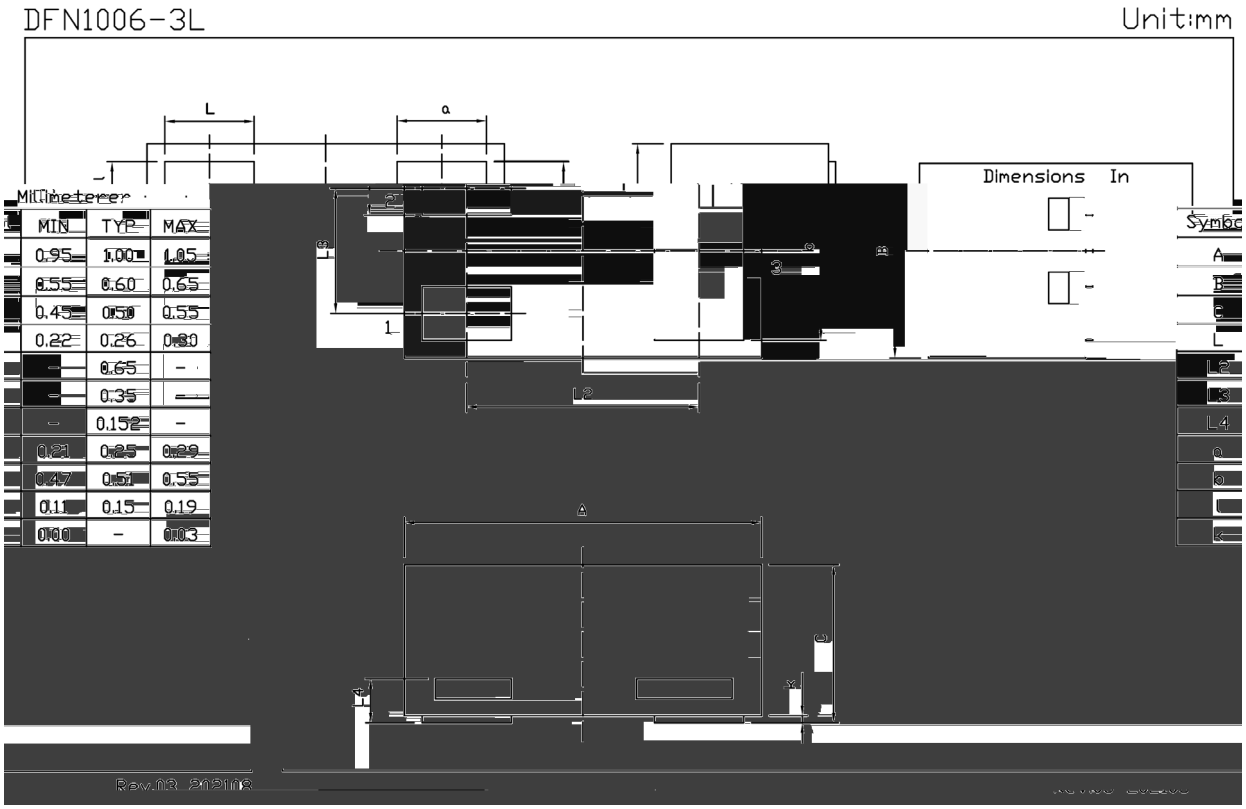



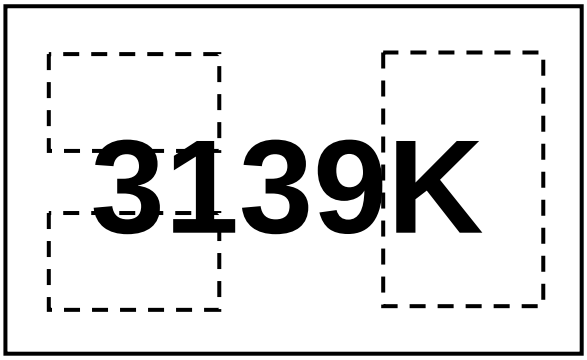

**Figure 9: Maximum Forward Biased Safe Operating Area**



## / Package Dimensions



## / Marking Instructions

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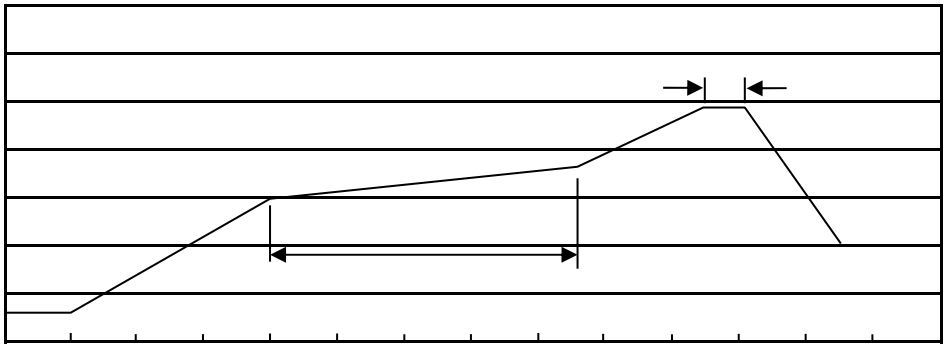
3139K χ ʁ ʒ ᴺ Ꮁ

Note:

3139K: Product Type

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



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1 Ĺ ♬ □ ў 150 Ќ 180 ł ı `H ڑ 60 Ќ 90sec;

2 Š Ө □ ў 245 ° 5 ł ı `H ڑ 'Y ٨ ₩ 5 ° 0.5sec;

3 ì ˙ ٧ ¸ ɔ ѡ ў ₩ 2 Ќ 10 ł /sec.

Note:

1.Preheating:150~180 ł , Time:60~90sec.

2.Peak Temp.:245 ° 5 ł , Duration:5 ° 0.5sec.

3. Cooling Speed: 2~10 ł /sec.

## / Resistance to Soldering Heat Test Conditions

□ ў χ 260 ° 5 ł `H ڑ χ 10 ° 1 sec. Temp.:260±5 Time:10±1 sec

## / Packaging SPEC.

ɔ ` ɣ Ł / REEL

| Package Type | Units | | | | | Dimension | | (unit mm³) |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| DFN1006-3L | 10,000 | 10 | 100,000 | 4 | 400,000 | 7″ ×8 | 210×205×205 | 445×435×230 |

## / Notices