## / Descriptions

SOP-8 N MOS

N-Channel Enhancement Mode Field Effect Transistor in a SOP-8 Plastic Package.

## / Features

$V_{DS}$=30V

$I_D$=13A ($V_{GS}$ = 10V)

$R_{DS(ON)}$<11.5mΩ ($V_{GS}$=10V)

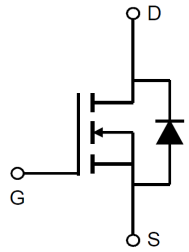
$R_{DS(ON)}$<15.5mΩ ($V_{GS}$=4.5V)

Halogen-free Product.

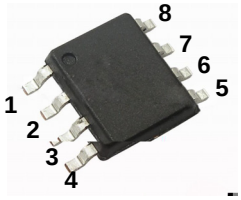
## / Applications

This device is suitable for high side switch in SMPS and general purpose applications.

## / Equivalent Circuit




## / Pinning



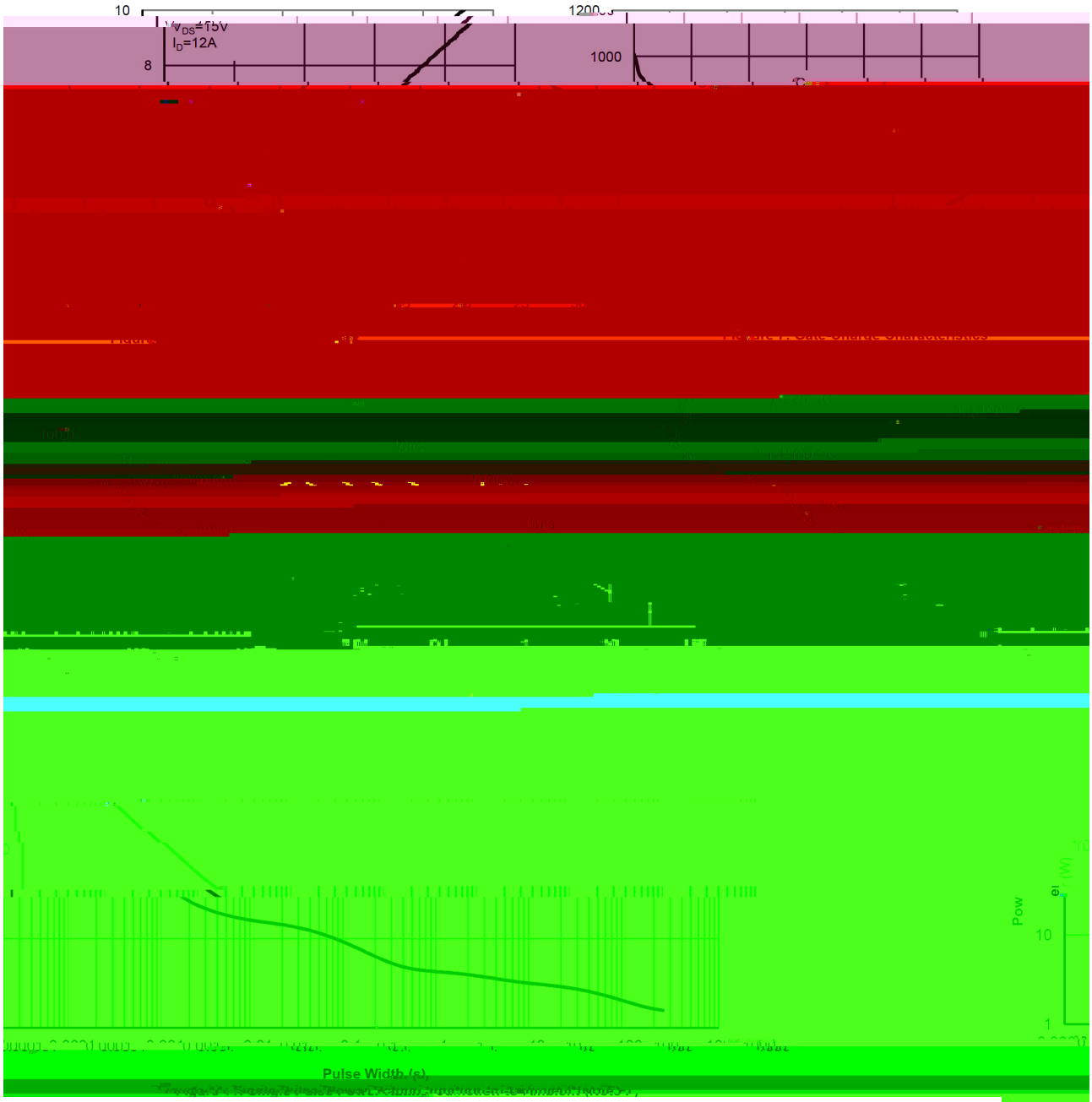

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PIN1 | S | PIN 2 | S | PIN 3 | S | PIN4 | G |
| PIN 5 | D | PIN 6 | D | PIN 7 | D | PIN 8 | D |

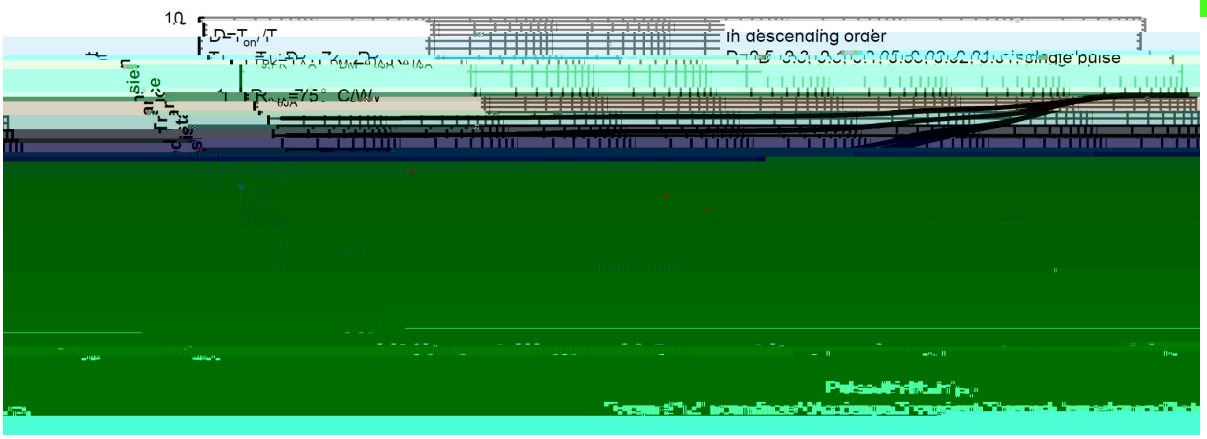
## / $h_{FE}$ Classifications & Marking

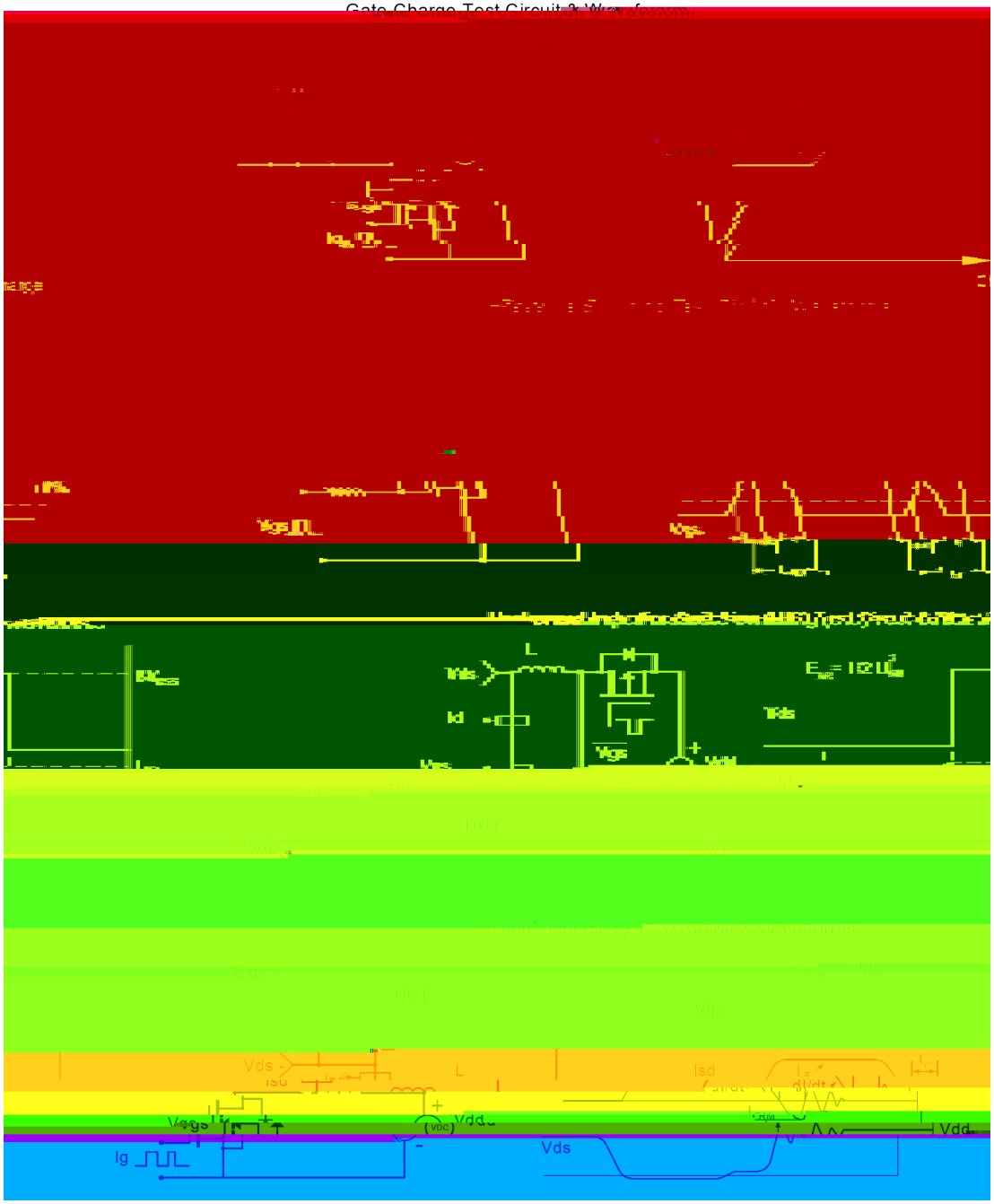
See Marking Instructions.

| Parameter | Symbol | Test Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage | $BV_{DSS}$ | $V_{GS}$=0V | $I_D$=250εA | 30 | | | V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=30V | $V_{GS}$=0V | | | 1.0 | εA |
| | | $V_{DS}$=30V $T_J$=55 | $V_{GS}$=0V | | | 5.0 | εA |
| Gate-Body leakage current | $I_{GSS}$ | $V_{GS}$=±20V | $V_{DS}$=0V | | | ±100 | nA |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$=$V_{GS}$ | $I_D$=250εA | 1.5 | 1.9 | 2.5 | V |
| On state drain current | $I_{D(on)}$ | $V_{DS}$=5V | $V_{GS}$=10V | 100 | | | A |
| Static Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}$=10V | $I_D$=12A | | 9.5 | 11.5 | mq |
| | | $V_{GS}$=10V $T_J$=125 | $I_D$=12A | | 14 | 17 | mq |
| | | $V_{GS}$=4.5V | $I_D$=10A | | 12.5 | 15.5 | mq |
| Forward Transconductance | $g_{FS}$ | $V_{DS}$=5.0V | $I_D$=12A | | 45 | | S |
| Diode Forward Voltage | $V_{SD}$ | $V_{GS}$=0V | $I_S$=1.0A | | 0.75 | 1 | V |
| Maximum Body-Diode Continuous Current | $I_S$ | | | | | 4 | A |
| Input Capacitance | $C_{iss}$ | $V_{DS}$=15V f=1.0MHz | $V_{GS}$=0V | | 760 | | pF |
| Output Capacitance | $C_{oss}$ | | | | 125 | | pF |
| Reverse Transfer Capacitance | $C_{rss}$ | | | | 70 | | pF |
| Gate resistance | $R_g$ | $V_{DS}$=0V f=1.0MHz | $V_{GS}$=0V | 0.8 | 1.6 | 2.4 | Ω |
| Total Gate Charge(10V) | $Q_g$ | $V_{GS}$=10V $I_D$=12A | $V_{DS}$=15V | | 14 | 25 | nC |
| Total Gate Charge(4.5V) | | | | | 6.6 | 12 | nC |
| Gate-Source Charge | $Q_{gs}$ | | | | 2.4 | | nC |
| Gate-Drain Charge | $Q_{gd}$ | | | | 3 | | nC |
| Gate-Source Charge | $Q_{gs}$ | $V_{GS}$=4.5V $I_D$=12A | $V_{DS}$=15V | | 2.4 | | nC |
| Gate-Drain Charge | $Q_{gd}$ | | | | 3 | | nC |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DS}$=15 V $R_L$=1.25q | $V_{GS}$=10V $R_{GEN}$=3q | | 4.4 | | ns |
| Turn-On Rise Time | $t_r$ | | | | 9 | | ns |
| Turn-Off Delay Time | $t_{d(off)}$ | | | | 17 | | ns |
| Turn-Off Fall Time | $t_f$ | | | | 6 | | ns |
| Body Diode Reverse Recovery Time | $t_{rr}$ | $I_F$=12A dI/dt=100A/εs | | | | | |

## Electrical Characteristic Curve




Vgs
L
Vds
Id
Vgs
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Vds
Isd
L
Vgs
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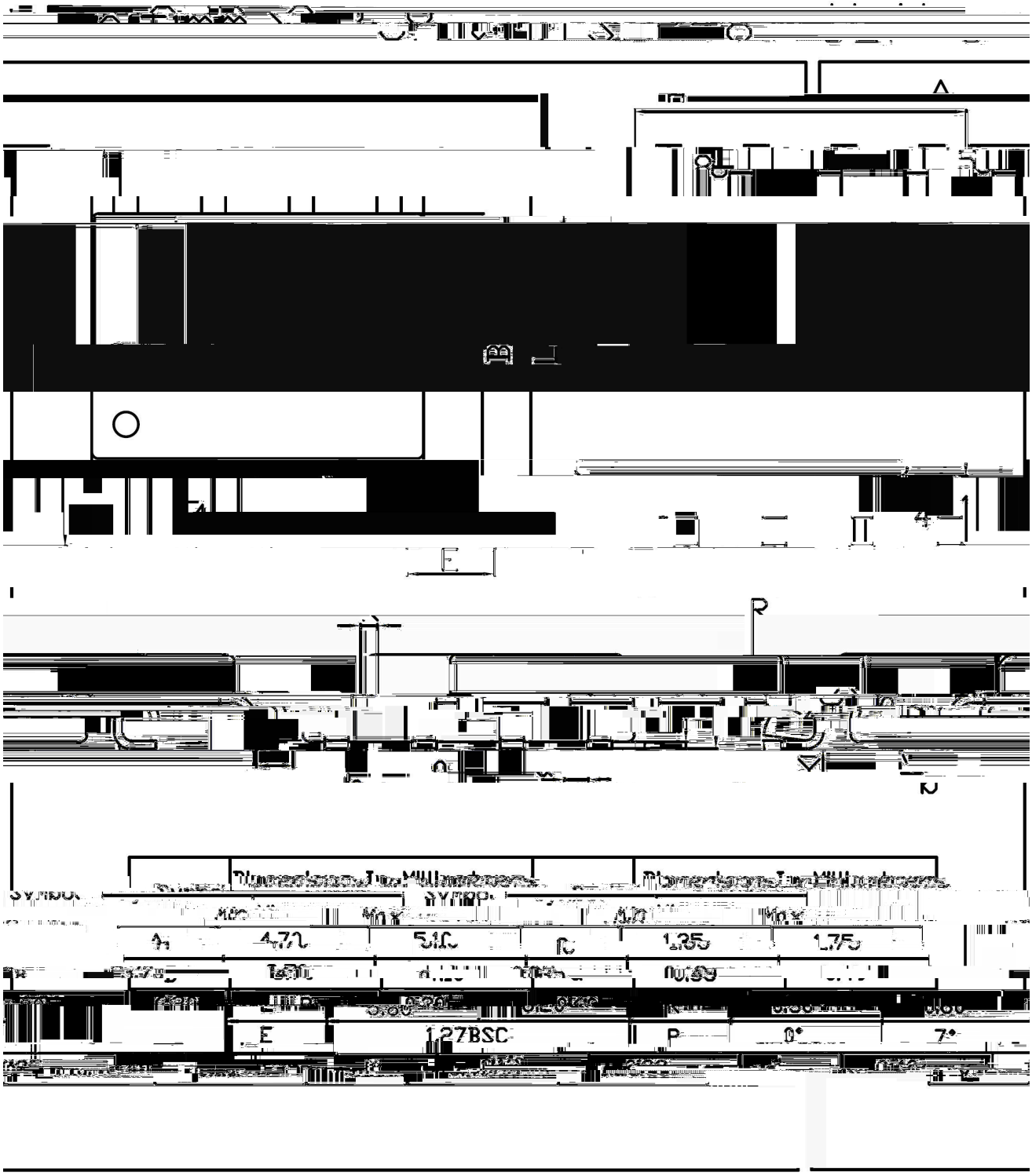
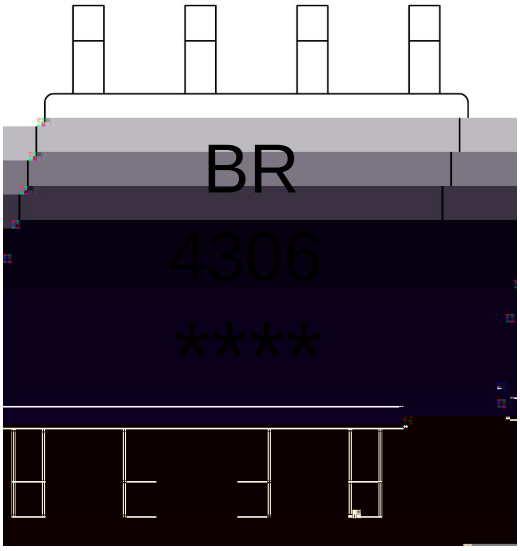
Vds
Vdd
Ig

## / Package Dimensions



## / Marking Instructions




BR

4306

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Note:

| | |
|---|---|
| BR: | Company Code. |
| 4306: | Product Type. |
| ****: | Lot No. Code, code change with Lot No. |

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