

## / Descriptions

TO-220      N      MOS      N-CHANNEL MOSFET in a TO-220 Plastic Package.

## / Features

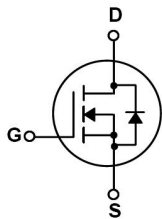
Low gate charge, low crss, fast switching.

## / Applications

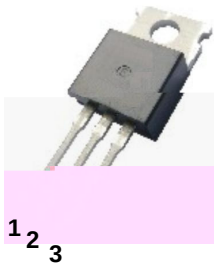
DC/DC

These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies.

## / Equivalent Circuit



## / Pinning



PIN1   G

PIN 2   D

PIN 3   S

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

See Marking Instructions.

**IRF640**

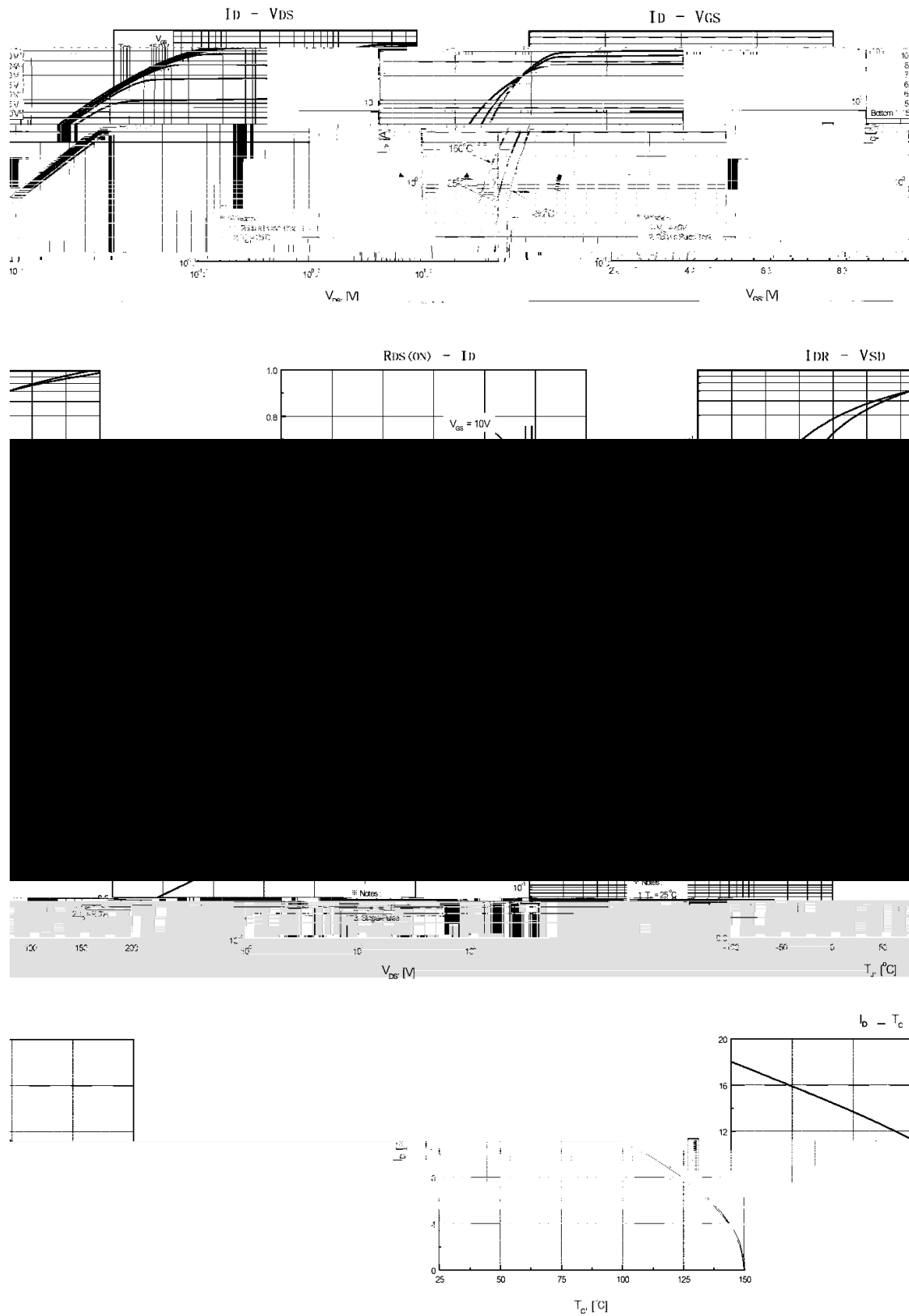
Rev.G Jul.-2018

| Parameter                              | Symbol                       | Rating     | Unit |
|----------------------------------------|------------------------------|------------|------|
| Drain-Source Voltage                   | $V_{DSS}$                    | 200        | V    |
| Drain Current                          | $I_D(T_C=25^\circ\text{C})$  | 18         | A    |
|                                        | $I_D(T_C=100^\circ\text{C})$ | 11.4       | A    |
| Pulsed Drain Current                   | $I_{DM}$                     | 72         | A    |
| Gate-Source Voltage                    | $V_{GSS}$                    | $\pm 30$   | V    |
| Single Pulsed Avalanche Energy         | $E_{AS}$                     | 250        | mJ   |
| Repetitive Avalanche Energy            | $E_{AR}$                     | 13.9       | mJ   |
| Avalanche Current                      | $I_{AR}$                     | 18         | A    |
| Total Power Dissipation                | $P_D(T_C=25^\circ\text{C})$  | 139        | W    |
| Junction and Storage Temperature Range | $T_J, T_{STG}$               | -55 to 150 |      |

| Parameter                         | Symbol       | Test Conditions                       | Min | Typ | Max       | Unit    |
|-----------------------------------|--------------|---------------------------------------|-----|-----|-----------|---------|
| Zero Gate Voltage Drain Current   | $BV_{DSS}$   | $V_{GS}=0V$ $I_D=250\mu A$            | 200 |     |           | V       |
| Zero Gate Voltage Drain Current   | $I_{DSS}$    | $V_{DS}=200V$ $V_{GS}=0V$             |     |     | 10        | $\mu A$ |
|                                   |              | $V_{DS}=160V$ $T_C=125^\circ\text{C}$ |     |     | 100       | $\mu A$ |
| Gate-Body Leakage Current Forward | $I_{GSS}$    | $V_{GS}=\pm 30V$ $V_{DS}=0V$          |     |     | $\pm 0.1$ | $\mu A$ |
| Gate Threshold Voltage            | $V_{GS(th)}$ | $V_{DS}=V_{GS}$ $I_D=250\mu A$        | 2.0 |     | 4.0       | V       |
| Forward Transconductance          | $g_{FS}$     | $V_{DS}=40V$ $I_D=9.0A$               |     | 13  |           | S       |

 Static Drain-Source  
 D

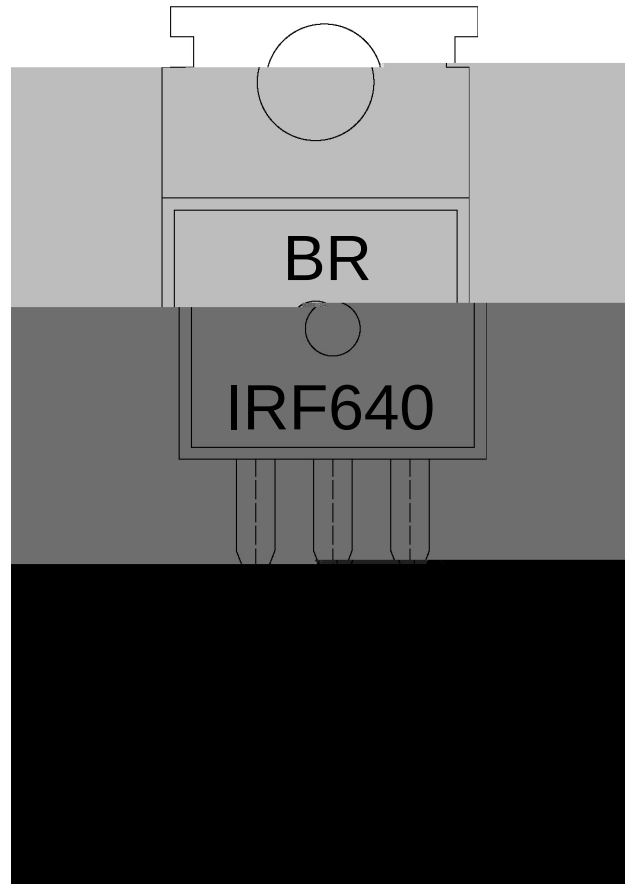
## / Electrical Characteristic Curve



## / Package Dimensions



**/ Marking Instructions**



BR

IRF640

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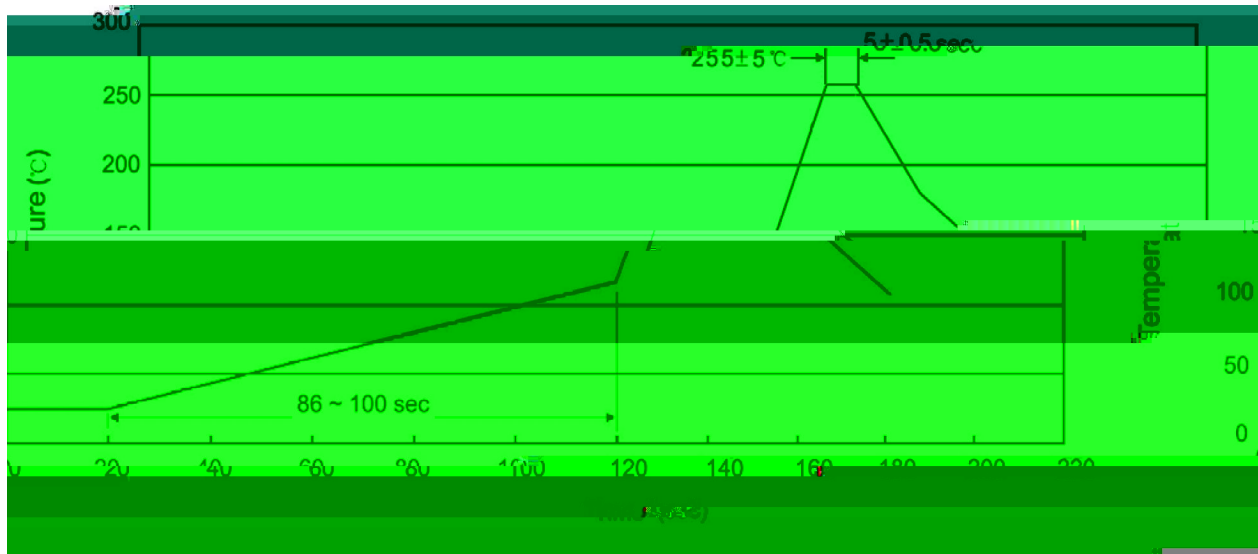
Note:

BR: Company Code

IRF640: Product Type.

\*\*\*\*: Lot No. Code, code change with Lot No.

( ) / Temperature Profile for Dip Soldering(Pb-Free)



Note:

- |   |       |     |           |        |                                         |
|---|-------|-----|-----------|--------|-----------------------------------------|
| 1 | 25    | 150 | 60        | 90sec; | 1.Preheating:25~150 , Time:60~90sec.    |
| 2 | 255±5 |     | 5±0.5sec; |        | 2.Peak Temp.:255±5 , Duration:5±0.5sec. |
| 3 |       | 2   | 10        | /sec.  | 3. Cooling Speed: 2~10 /sec.            |

### / Resistance to Soldering Heat Test Conditions

270±5      10±1 sec.      Temp.:270±5      Time:10±1 sec

## / Packaging SPEC.

/ BULK

[illegible]

/ TUBE

A diagram showing a horizontal timeline with a vertical line at the start and a horizontal line at the end. The timeline is divided into segments by vertical lines. The first segment is labeled '1' and the last segment is labeled '3'.

## / Notices