



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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IRF7707

HEXFET® Power MOSFET

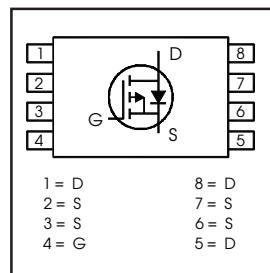
- Ultra Low On-Resistance
- P-Channel MOSFET
- Very Small SOIC Package
- Low Profile (< 1.2mm)
- Available in Tape & Reel

| V_{DS} | $R_{DS(on)}$ max | I_D |
|----------|------------------------|-------|
| -20V | 22mΩ@ $V_{GS} = -4.5V$ | -7.0A |
| | 33mΩ@ $V_{GS} = -2.5V$ | -6.0A |

Description

HEXFET® Power MOSFETs from International Rectifier utilize advanced processing techniques to achieve extremely low on-resistance per silicon area. This benefit, combined with the ruggedized device design, that International Rectifier is well known for, provides the designer with an extremely efficient and reliable device for battery and load management.

The TSSOP-8 package has 45% less footprint area than the standard SO-8. This makes the TSSOP-8 an ideal device for applications where printed circuit board space is at a premium. The low profile (<1.2mm) allows it to fit easily into extremely thin environments such as portable electronics and PCMCIA cards.



Absolute Maximum Ratings

| | Parameter | Max. | Units |
|--------------------------|--|-------------|-------|
| V_{DS} | Drain-Source Voltage | -20 | V |
| $I_D @ T_A = 25^\circ C$ | Continuous Drain Current, $V_{GS} @ -4.5V$ | -7.0 | A |
| $I_D @ T_A = 70^\circ C$ | Continuous Drain Current, $V_{GS} @ -4.5V$ | -5.7 | |
| I_{DM} | Pulsed Drain Current ^① | -28 | |
| $P_D @ T_A = 25^\circ C$ | Maximum Power Dissipation ^③ | 1.5 | W |
| $P_D @ T_A = 70^\circ C$ | Maximum Power Dissipation ^③ | 1.0 | W |
| | Linear Derating Factor | 0.01 | W/°C |
| V_{GS} | Gate-to-Source Voltage | ±12 | V |
| T_J, T_{STG} | Junction and Storage Temperature Range | -55 to +150 | °C |

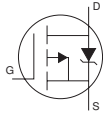
Thermal Resistance

| | Parameter | Max. | Units |
|-----------------|--|------|-------|
| $R_{\theta JA}$ | Maximum Junction-to-Ambient ^③ | 83 | °C/W |

Electrical Characteristics @ T_J = 25°C (unless otherwise specified)

| | Parameter | Min. | Typ. | Max. | Units | Conditions |
|--|--------------------------------------|-------|-------|------|-------|---|
| V _{(BR)DSS} | Drain-to-Source Breakdown Voltage | -20 | — | — | V | V _{GS} = 0V, I _D = -250μA |
| ΔV _{(BR)DSS} /ΔT _J | Breakdown Voltage Temp. Coefficient | — | 0.012 | — | V/°C | Reference to 25°C, I _D = -1mA |
| R _{DS(on)} | Static Drain-to-Source On-Resistance | — | 14.3 | 22 | mΩ | V _{GS} = -4.5V, I _D = -7.0A ② |
| | | — | 18.9 | 33 | | V _{GS} = -2.5V, I _D = -6.0A ② |
| V _{GS(th)} | Gate Threshold Voltage | -0.45 | — | -1.2 | V | V _{DS} = V _{GS} , I _D = -250μA |
| g _{fs} | Forward Transconductance | 15 | — | — | S | V _{DS} = -10V, I _D = -7.0A |
| I _{DSS} | Drain-to-Source Leakage Current | — | — | -1.0 | μA | V _{DS} = -16V, V _{GS} = 0V |
| | | — | — | -25 | | V _{DS} = -16V, V _{GS} = 0V, T _J = 70°C |
| I _{GSS} | Gate-to-Source Forward Leakage | — | — | -100 | nA | V _{GS} = -12V |
| | Gate-to-Source Reverse Leakage | — | — | 100 | | V _{GS} = 12V |
| Q _g | Total Gate Charge | — | 31 | 47 | nC | I _D = -7.0A |
| Q _{gs} | Gate-to-Source Charge | — | 6.4 | — | | V _{DS} = -16V |
| Q _{gd} | Gate-to-Drain ("Miller") Charge | — | 10 | — | | V _{GS} = -4.5V |
| t _{d(on)} | Turn-On Delay Time | — | 11 | 17 | ns | V _{DD} = -10V |
| t _r | Rise Time | — | 54 | 81 | | I _D = -1.0A |
| t _{d(off)} | Turn-Off Delay Time | — | 134 | 201 | | R _G = 6.0Ω |
| t _f | Fall Time | — | 138 | 207 | | V _{GS} = -4.5V ② |
| C _{iss} | Input Capacitance | — | 2361 | — | pF | V _{GS} = 0V |
| C _{oss} | Output Capacitance | — | 512 | — | | V _{DS} = -15V |
| C _{rss} | Reverse Transfer Capacitance | — | 323 | — | | f = 1.0MHz |

Source-Drain Ratings and Characteristics

| | Parameter | Min. | Typ. | Max. | Units | Conditions |
|-----------------|--|------|------|------|-------|--|
| I _S | Continuous Source Current (Body Diode) | — | — | -1.5 | A | MOSFET symbol showing the integral reverse p-n junction diode.  |
| I _{SM} | Pulsed Source Current (Body Diode) ① | — | — | -28 | | |
| V _{SD} | Diode Forward Voltage | — | — | -1.2 | V | T _J = 25°C, I _S = -1.5A, V _{GS} = 0V ② |
| t _{rr} | Reverse Recovery Time | — | 142 | 213 | ns | T _J = 25°C, I _F = -1.5A |
| Q _{rr} | Reverse Recovery Charge | — | 147 | 221 | nC | di/dt = -100A/μs ② |

Notes:

① Repetitive rating; pulse width limited by max. junction temperature.

② Pulse width ≤ 300μs; duty cycle ≤ 2%.

③ When mounted on 1 inch square copper board, t < 10sec.

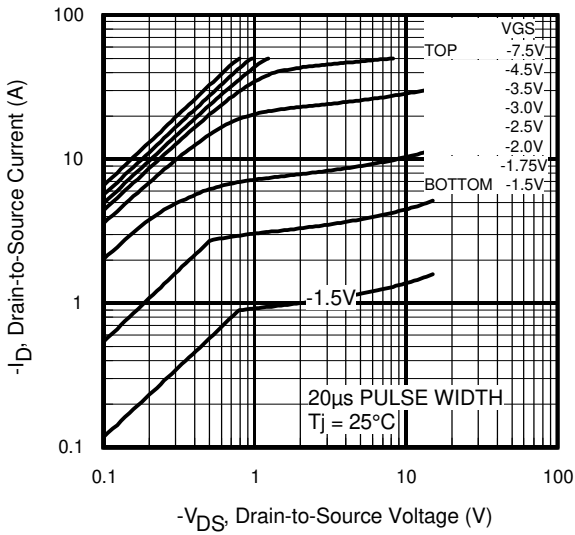


Fig 1. Typical Output Characteristics

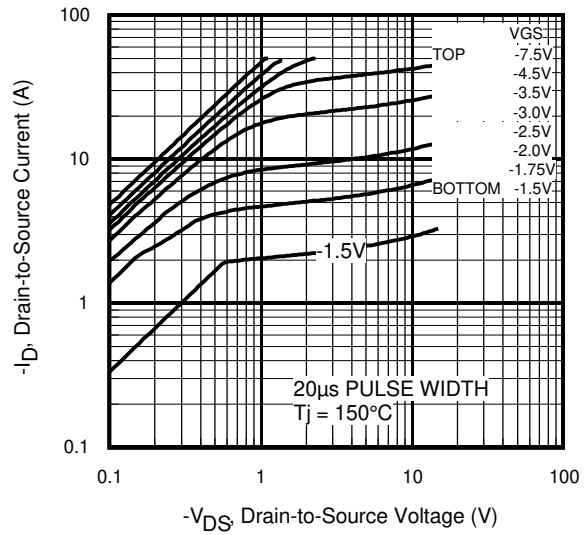


Fig 2. Typical Output Characteristics

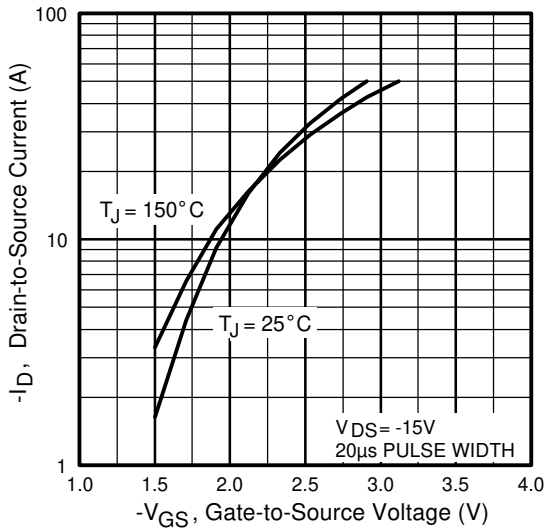


Fig 3. Typical Transfer Characteristics

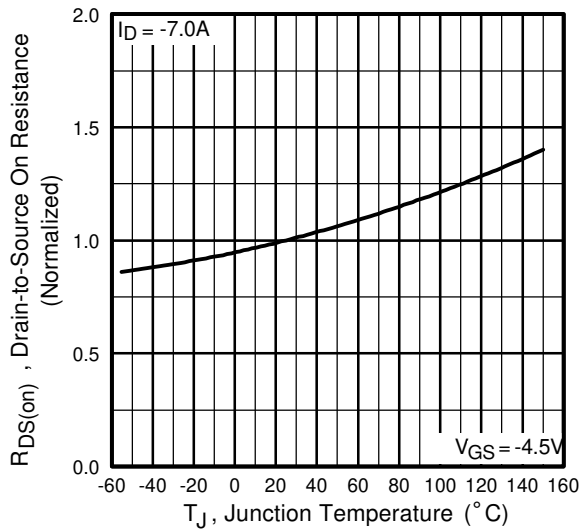


Fig 4. Normalized On-Resistance Vs. Temperature

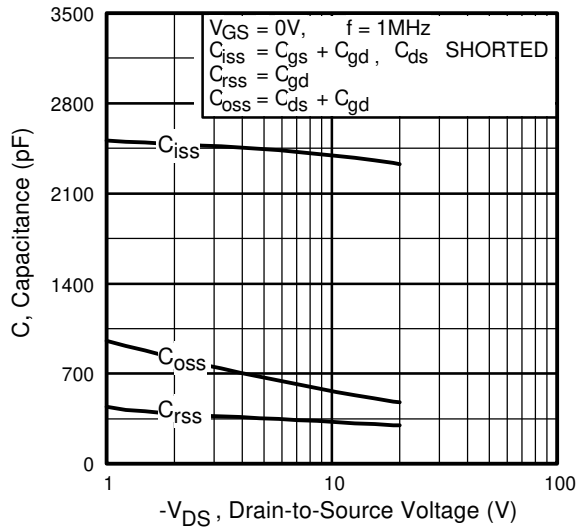


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

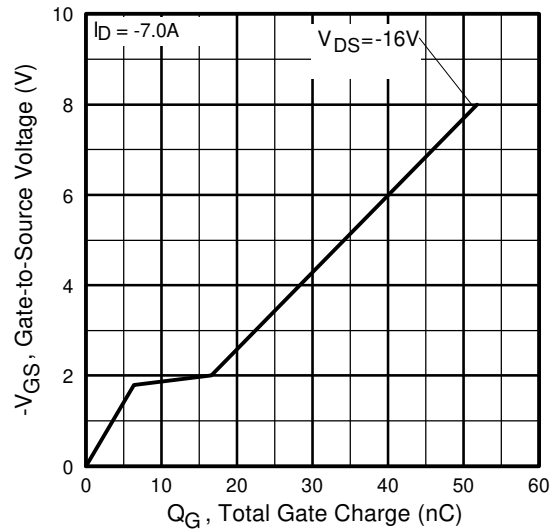


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

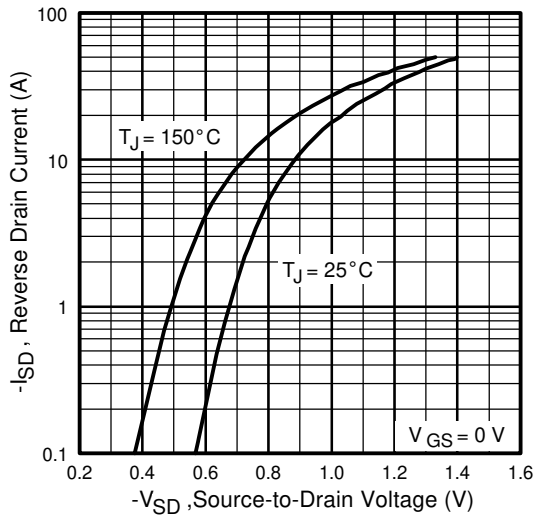


Fig 7. Typical Source-Drain Diode Forward Voltage

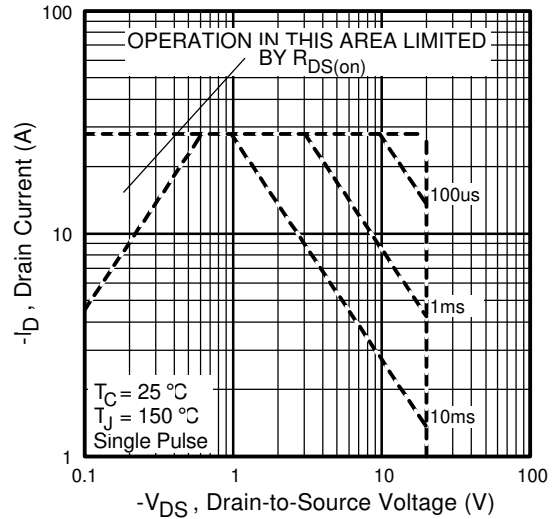


Fig 8. Maximum Safe Operating Area

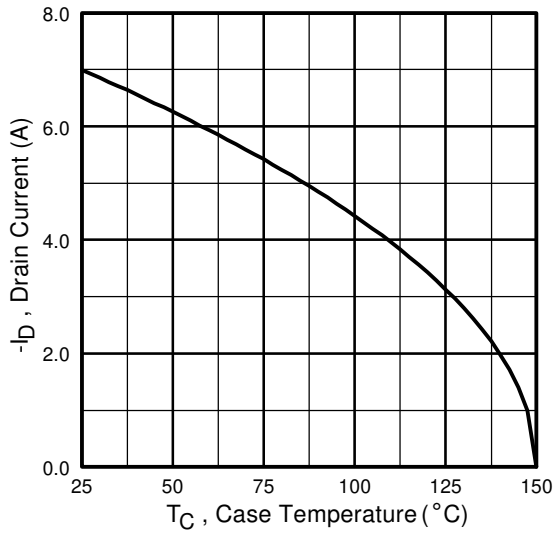


Fig 9. Maximum Drain Current Vs. Case Temperature

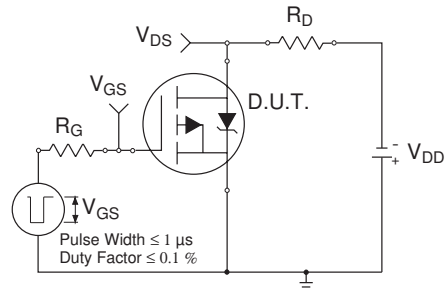


Fig 10a. Switching Time Test Circuit

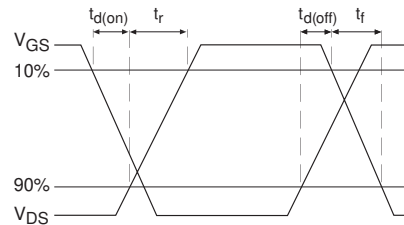


Fig 10b. Switching Time Waveforms

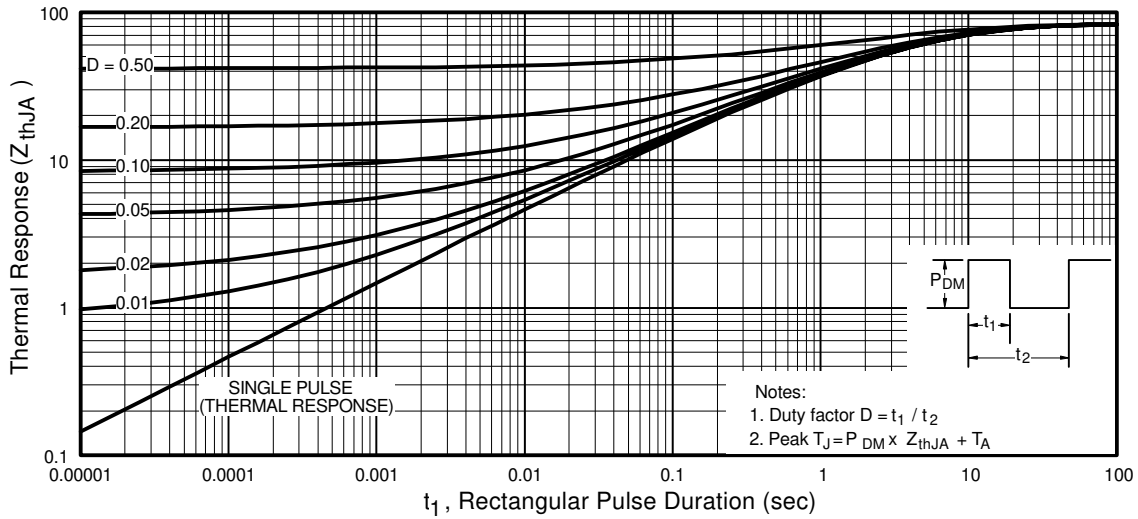


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

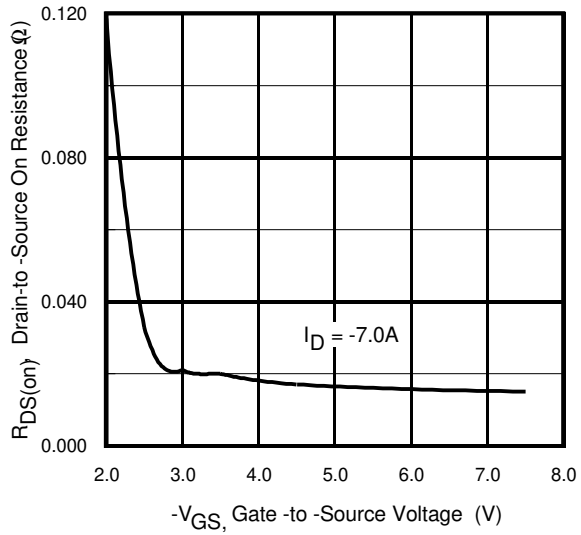


Fig 12. Typical On-Resistance Vs. Gate Voltage

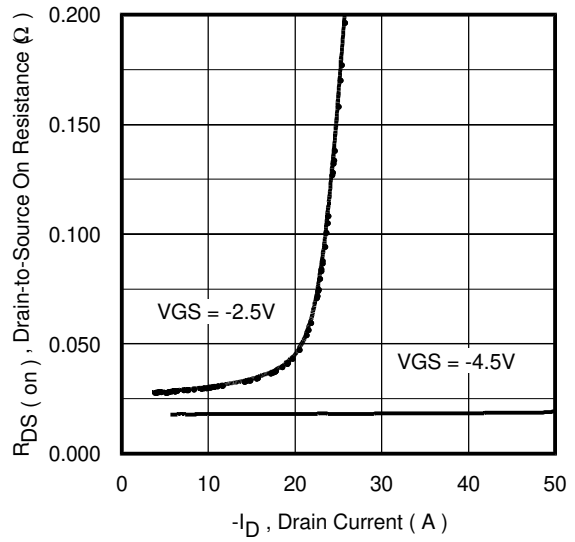


Fig 13. Typical On-Resistance Vs. Drain Current

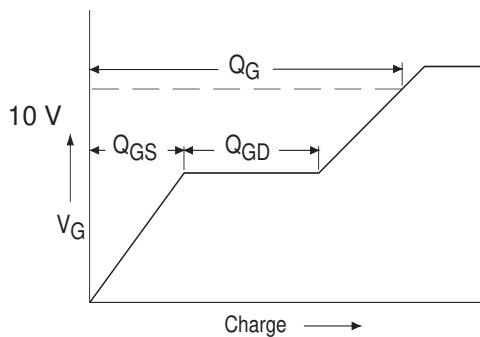


Fig 14a. Basic Gate Charge Waveform

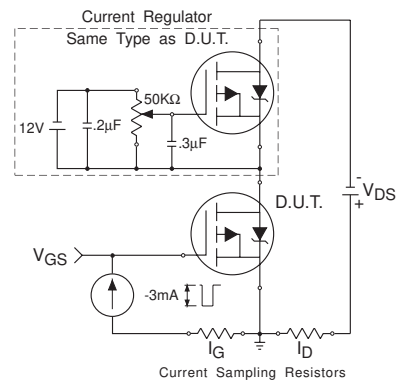
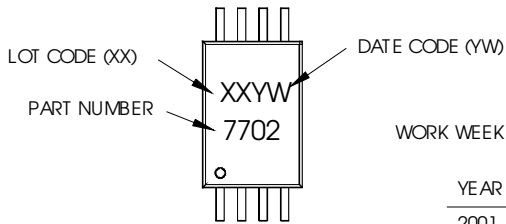


Fig 14b. Gate Charge Test Circuit

TSSOP-8 Part Marking Information

EXAMPLE: THIS IS AN IRF7702



DATE CODE EXAMPLES:

9503 = 5C
 9532 = EF

TABLE 1

WORK WEEK 1-26, NUMERIC YEAR CODE (1,2, ...ETC.)

| YEAR | Y | WORK WEEK | W |
|------|---|-----------|---|
| 2001 | 1 | 01 | A |
| 2002 | 2 | 02 | B |
| 2003 | 3 | 03 | C |
| 1994 | 4 | 04 | D |
| 1995 | 5 | | |
| 1996 | 6 | | |
| 1997 | 7 | | |
| 1998 | 8 | | |
| 1999 | 9 | | |
| 2000 | 0 | 24 | X |
| | | 25 | Y |
| | | 26 | Z |

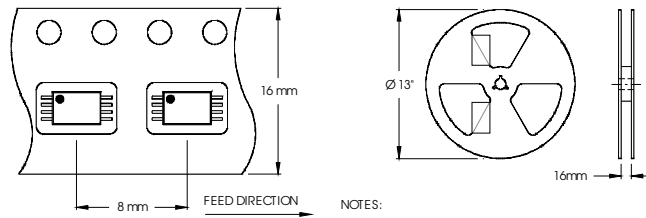
TABLE 2

WORK WEEK 27-52, ALPHANUMERIC YEAR CODE (A,B, ...ETC.)

| YEAR | Y | WORK WEEK | W |
|------|---|-----------|---|
| 2001 | A | 27 | A |
| 2002 | B | 28 | B |
| 2003 | C | 29 | C |
| 1994 | D | 30 | D |
| 1995 | E | | |
| 1996 | F | | |
| 1997 | G | | |
| 1998 | H | | |
| 1999 | J | | |
| 2000 | K | 50 | X |
| | | 51 | Y |
| | | 52 | Z |

TSSOP-8 Tape and Reel

8LTSSOP (MO-153AA)



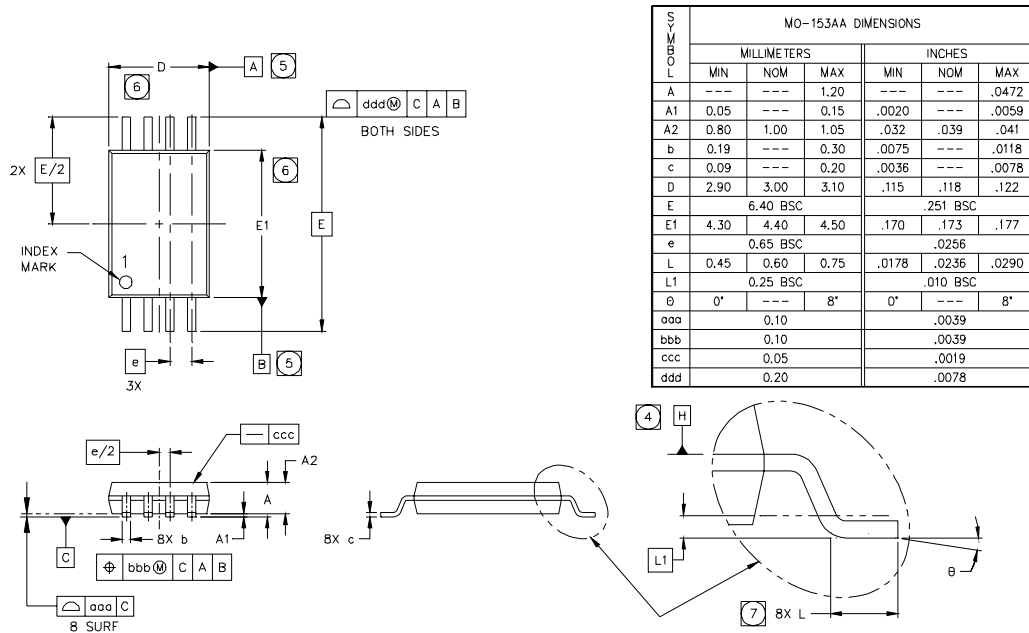
NOTES:

1. TAPE & REEL OUTLINE CONFORMS TO EIA-481 & EIA-541.

IRF7707

International
IR Rectifier

TSSOP-8 Package Outline



NOTES

- DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
- DIMENSIONS ARE SHOWN IN MILLIMETERS AND INCHES.
- CONTROLLING DIMENSION: MILLIMETER.
- DATUM PLANE H IS LOCATED AS SHOWN.
- DATUM A AND B TO BE DETERMINED AT DATUM PLANE H.
- DIMENSIONS D AND E1 ARE MEASURED AT DATUM PLANE H.
- DIMENSION L IS THE LEAD LENGTH FOR SOLDERING TO A SUBSTRATE.
- OUTLINE CONFORMS TO JEDEC OUTLINE MO-153AA.

LEAD ASSIGNMENTS



International
IR Rectifier

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Data and specifications subject to change without notice. 10/00