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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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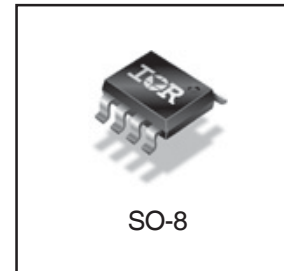
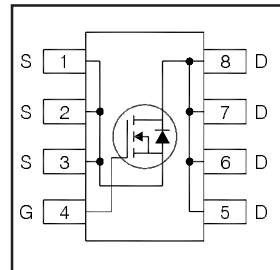
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



# IRF6201PbF

HEXFET® Power MOSFET

<b>V<sub>DS</sub></b>	<b>20</b>	<b>V</b>
<b>R<sub>DS(on)</sub> max</b> (@V <sub>GS</sub> = 4.5V)	<b>2.45</b>	<b>mΩ</b>
<b>R<sub>DS(on)</sub> max</b> (@V <sub>GS</sub> = 2.5V)	<b>2.75</b>	<b>mΩ</b>
<b>Q<sub>g</sub> (typical)</b>	<b>130</b>	<b>nC</b>
<b>I<sub>D</sub></b> (@T <sub>A</sub> = 25°C)	<b>27</b>	<b>A</b>



### Applications

- OR-ing or hot-swap MOSFET
- Battery operated DC motor inverter MOSFET
- System/Load switch

### Features and Benefits

#### Features

Low R <sub>DSon</sub> (≤ 2.45mΩ @ V <sub>gs</sub> = 4.5V)
Industry-standard SO-8 package
RoHS compliant containing no lead, no bromide and no halogen

results in  
 ⇒

#### Benefits

Lower conduction losses
Multi-vendor compatibility
Environmentally Friendly

Orderable part number	Package Type	Standard Pack		Note
		Form	Quantity	
IRF6201PbF	SO8	Tube/Bulk	95	
IRF6201TRPbF	SO8	Tape and Reel	4000	

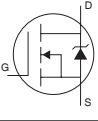
### Absolute Maximum Ratings

	Parameter	Max.	Units
V <sub>DS</sub>	Drain-to-Source Voltage	20	V
V <sub>GS</sub>	Gate-to-Source Voltage	±12	
I <sub>D</sub> @ T <sub>A</sub> = 25°C	Continuous Drain Current, V <sub>GS</sub> @ 4.5V	27	A
I <sub>D</sub> @ T <sub>A</sub> = 70°C	Continuous Drain Current, V <sub>GS</sub> @ 4.5V	22	
I <sub>DM</sub>	Pulsed Drain Current ①	110	
P <sub>D</sub> @ T <sub>A</sub> = 25°C	Power Dissipation ③	2.5	W
P <sub>D</sub> @ T <sub>A</sub> = 70°C	Power Dissipation ③	1.6	
	Linear Derating Factor	0.02	W/°C
T <sub>J</sub>	Operating Junction and	-55 to + 150	°C
T <sub>STG</sub>	Storage Temperature Range		

## Static @ $T_J = 25^\circ\text{C}$ (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Conditions
$BV_{DSS}$	Drain-to-Source Breakdown Voltage	20	—	—	V	$V_{GS} = 0V, I_D = 250\mu A$
$\Delta BV_{DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	—	4.6	—	mV/ $^\circ\text{C}$	Reference to $25^\circ\text{C}, I_D = 1\text{mA}$
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	—	1.90	2.45	m $\Omega$	$V_{GS} = 4.5V, I_D = 27A$ ②
		—	2.10	2.75		$V_{GS} = 2.5V, I_D = 22A$ ②
$V_{GS(th)}$	Gate Threshold Voltage	0.5	—	1.1	V	$V_{DS} = V_{GS}, I_D = 100\mu A$
$I_{DSS}$	Drain-to-Source Leakage Current	—	—	1.0	$\mu A$	$V_{DS} = 16V, V_{GS} = 0V$
		—	—	150		$V_{DS} = 16V, V_{GS} = 0V, T_J = 125^\circ\text{C}$
$I_{GSS}$	Gate-to-Source Forward Leakage	—	—	100	nA	$V_{GS} = 12V$
	Gate-to-Source Reverse Leakage	—	—	-100		$V_{GS} = -12V$
$Q_g$	Total Gate Charge	—	130	195	nC	$V_{GS} = 4.5V$
$Q_{gs}$	Gate-to-Source Charge	—	16	—		$V_{DS} = 10V$
$Q_{gd}$	Gate-to-Drain Charge	—	60	—		$I_D = 22A$
$t_{d(on)}$	Turn-On Delay Time	—	29	—	ns	$V_{DD} = 20V, V_{GS} = 4.5V$
$t_r$	Rise Time	—	100	—		$I_D = 1.0A$
$t_{d(off)}$	Turn-Off Delay Time	—	320	—		$R_G = 6.8\Omega$
$t_f$	Fall Time	—	265	—		See Figs. 10a & 10b
$C_{iss}$	Input Capacitance	—	8555	—	pF	$V_{GS} = 0V$
$C_{oss}$	Output Capacitance	—	1735	—		$V_{DS} = 16V$
$C_{riss}$	Reverse Transfer Capacitance	—	1290	—		$f = 1.0\text{MHz}$

## Diode Characteristics

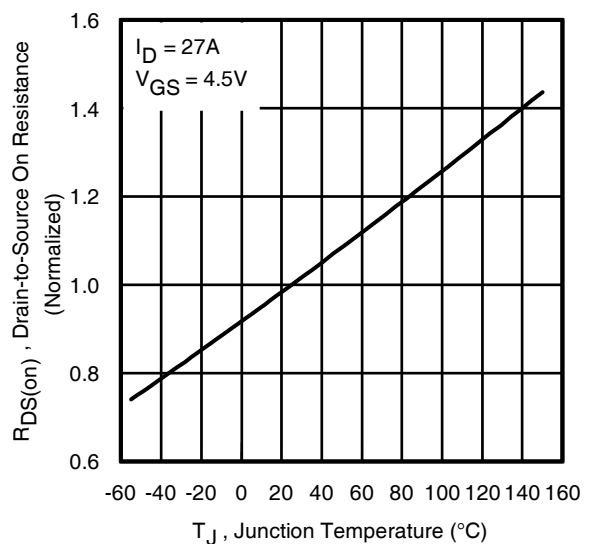
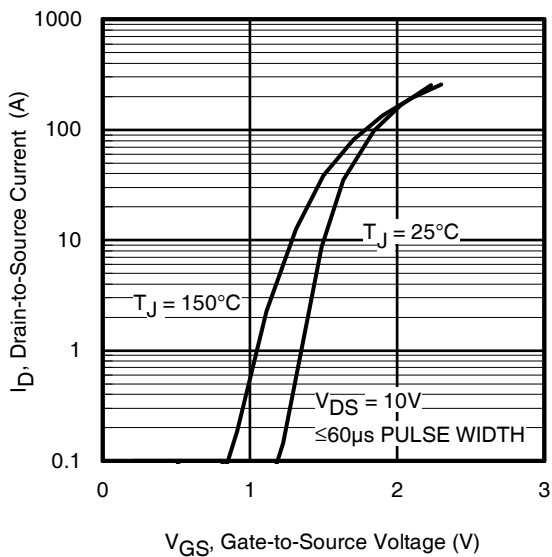
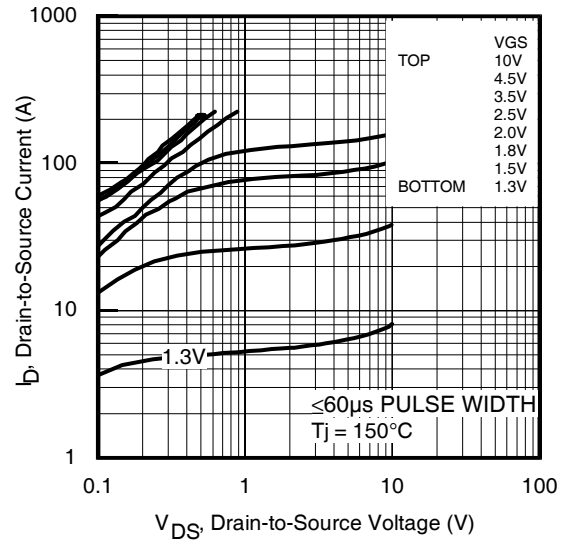
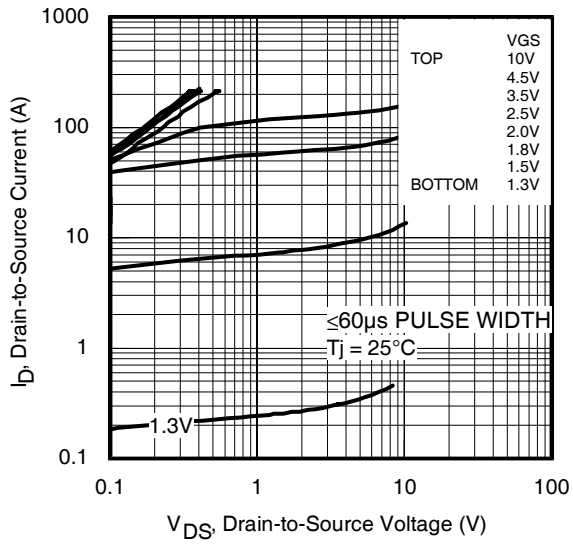
	Parameter	Min.	Typ.	Max.	Units	Conditions
$I_S$	Continuous Source Current (Body Diode)	—	—	2.5	A	MOSFET symbol showing the integral reverse p-n junction diode. 
$I_{SM}$	Pulsed Source Current (Body Diode) ①	—	—	110		
$V_{SD}$	Diode Forward Voltage	—	—	1.2	V	$T_J = 25^\circ\text{C}, I_S = 2.5A, V_{GS} = 0V$ ②
$t_{rr}$	Reverse Recovery Time	—	82	120	ns	$T_J = 25^\circ\text{C}, I_F = 2.5A, V_{DD} = 16V$
$Q_{rr}$	Reverse Recovery Charge	—	180	270	nC	$di/dt = 100/\mu s$ ②

## Thermal Resistance

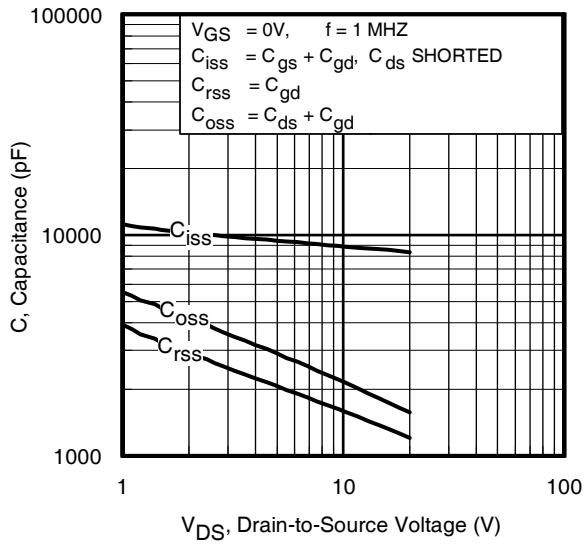
	Parameter	Typ.	Max.	Units
$R_{\theta JL}$	Junction-to-Drain Lead ④	—	20	$^\circ\text{C/W}$
$R_{\theta JA}$	Junction-to-Ambient ③	—	50	

### Notes:

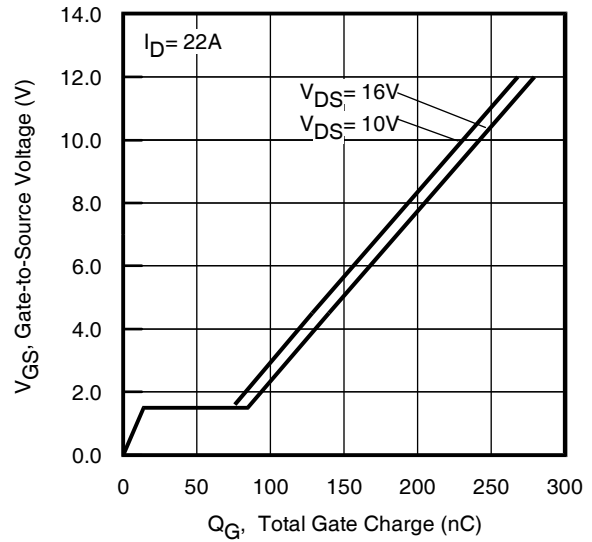
- ① Repetitive rating; pulse width limited by max. junction temperature.
- ② Pulse width  $\leq 400\mu s$ ; duty cycle  $\leq 2\%$ .
- ③ When mounted on 1 inch square copper board.
- ④  $R_{\theta}$  is measured at  $T_J$  approximately  $90^\circ\text{C}$ .



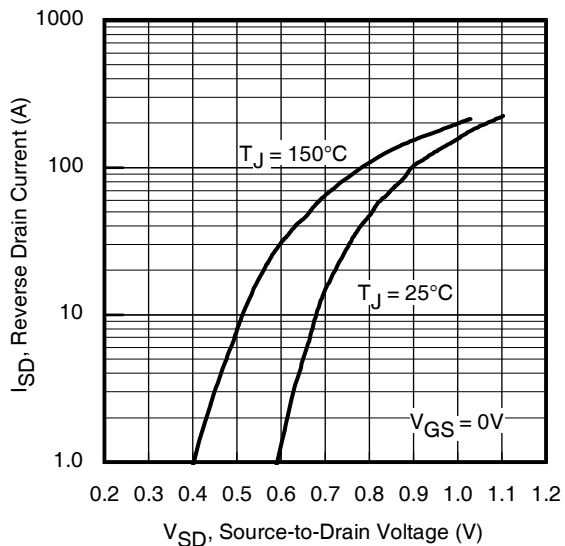




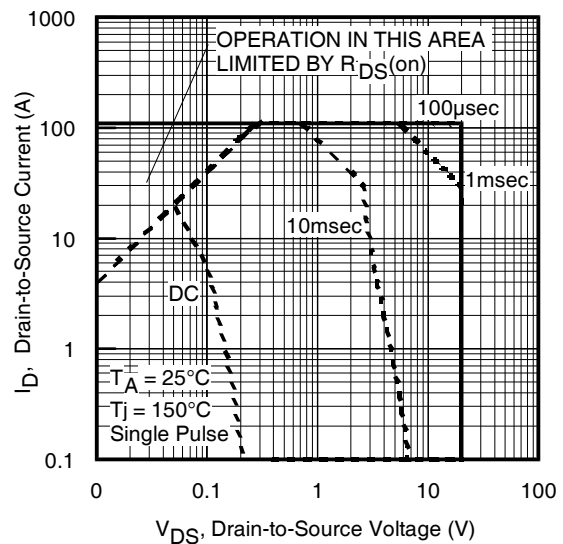
**Fig 5.** Typical Capacitance vs. Drain-to-Source Voltage



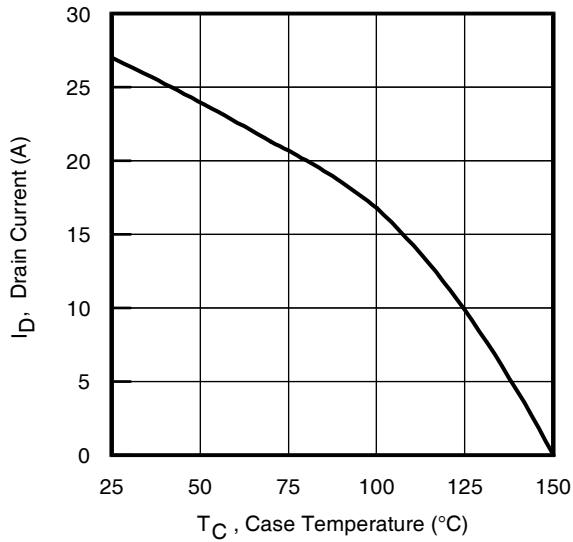
**Fig 6.** Typical Gate Charge vs. Gate-to-Source Voltage



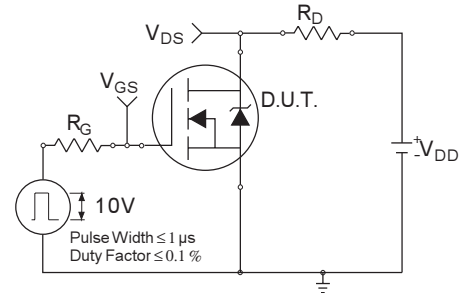
**Fig 7.** Typical Source-Drain Diode Forward Voltage



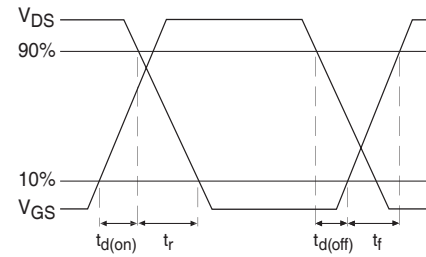
**Fig 8.** Maximum Safe Operating Area



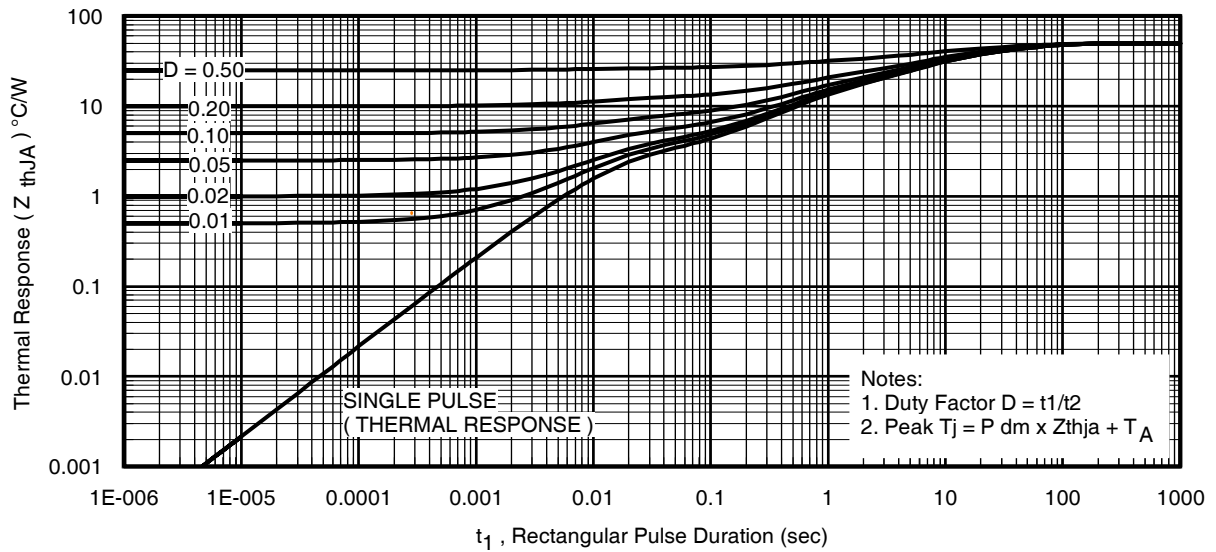
**Fig 9.** Maximum Drain Current vs. Case Temperature



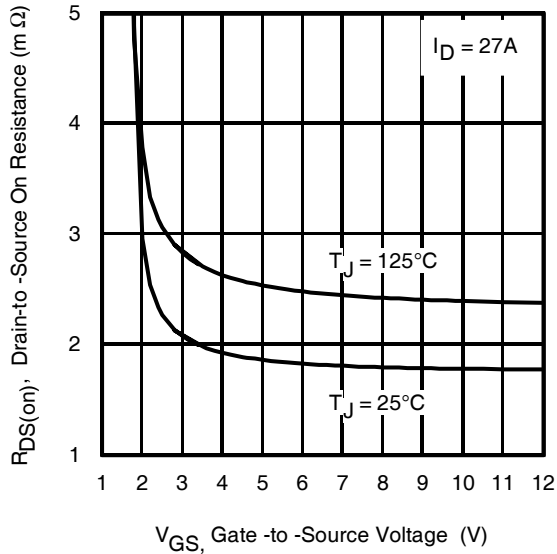
**Fig 10a.** Switching Time Test Circuit



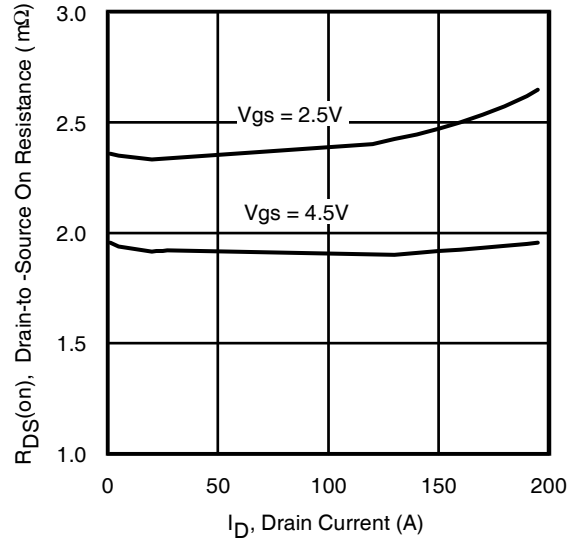
**Fig 10b.** Switching Time Waveforms



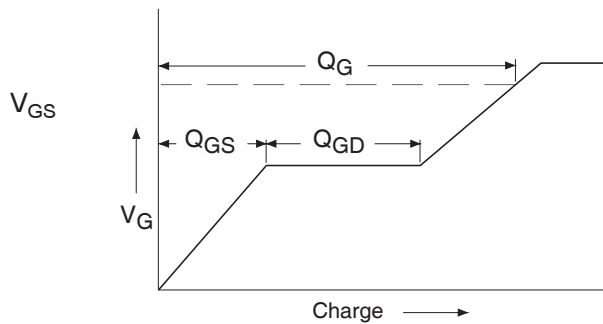
**Fig 11.** Typical Effective Transient Thermal Impedance, Junction-to-Ambient



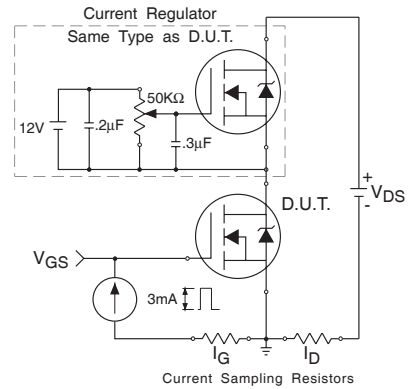
**Fig 12.** Typical On-Resistance vs. Gate Voltage



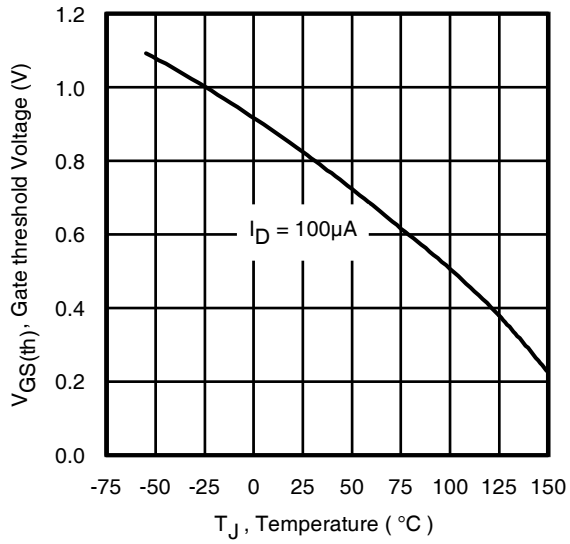
**Fig 13.** Typical On-Resistance vs. Drain Current



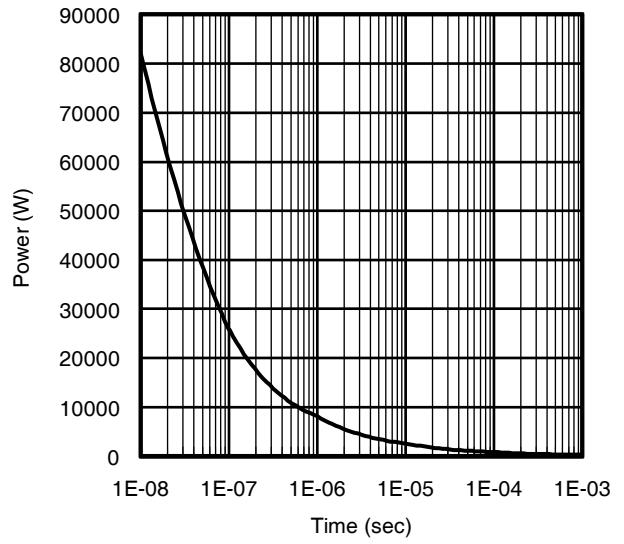
**Fig 14a.** Basic Gate Charge Waveform



**Fig 14b.** Gate Charge Test Circuit



**Fig 15.** Typical Threshold Voltage vs. Junction Temperature



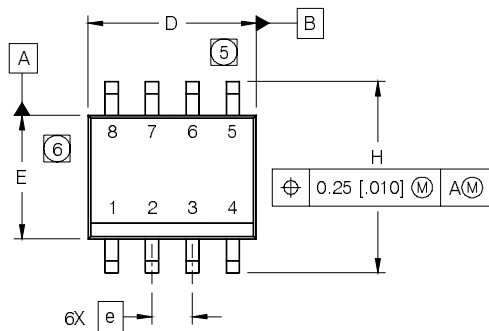
**Fig 16.** Typical Power vs. Time



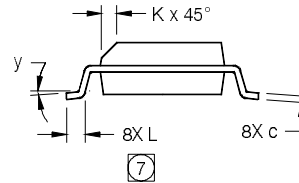
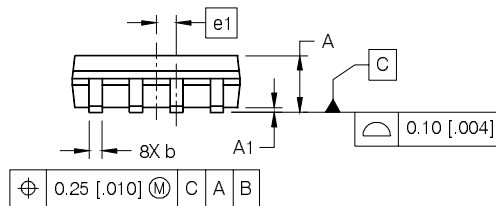
# IRF6201PbF

## SO-8 Package Outline (Mosfet & Fetky)

Dimensions are shown in millimeters (inches)



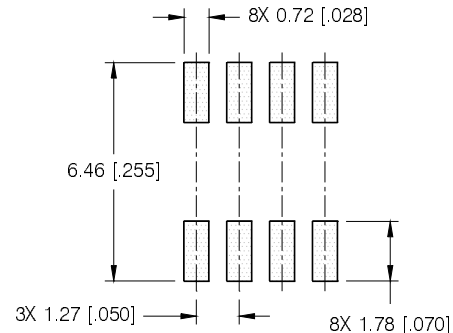
DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.0532	.0688	1.35	1.75
A1	.0040	.0098	0.10	0.25
b	.013	.020	0.33	0.51
c	.0075	.0098	0.19	0.25
D	.189	.1968	4.80	5.00
E	.1497	.1574	3.80	4.00
e	.050 BASIC		1.27 BASIC	
e1	.025 BASIC		0.635 BASIC	
H	.2284	.2440	5.80	6.20
K	.0099	.0196	0.25	0.50
L	.016	.050	0.40	1.27
y	0°	8°	0°	8°



### NOTES:

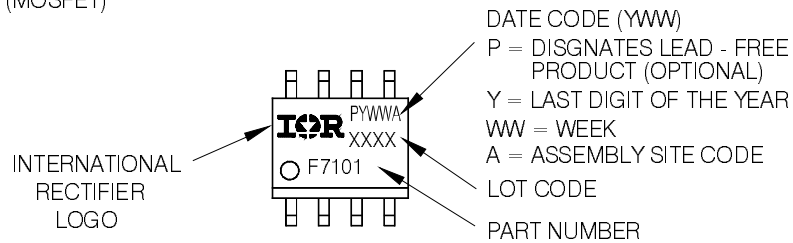
1. DIMENSIONING & TOLERANCING PER ASME Y14.5M-1994.
2. CONTROLLING DIMENSION: MILLIMETER
3. DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].
4. OUTLINE CONFORMS TO JEDEC OUTLINE MS-012AA.
- ⑤ DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.15 [0.006].
- ⑥ DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.25 [0.010].
- ⑦ DIMENSION IS THE LENGTH OF LEAD FOR SOLDERING TO A SUBSTRATE.

### FOOTPRINT



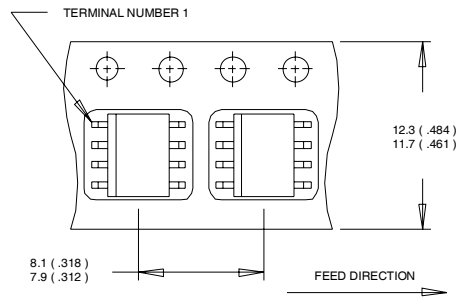
## SO-8 Part Marking Information

EXAMPLE: THIS IS AN IRF7101 (MOSFET)

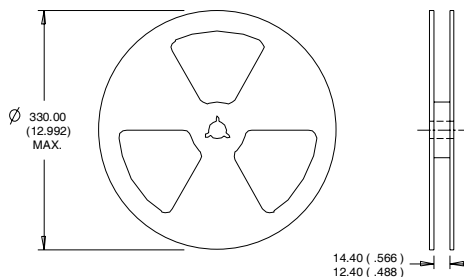


Note: For the most current drawing please refer to IR website at <http://www.irf.com/package/>

## SO-8 Tape and Reel



- NOTES:  
 1. CONTROLLING DIMENSION : MILLIMETER.  
 2. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS(INCHES).  
 3. OUTLINE CONFORMS TO EIA-481 & EIA-541.



- NOTES :  
 1. CONTROLLING DIMENSION : MILLIMETER.  
 2. OUTLINE CONFORMS TO EIA-481 & EIA-541.

### Qualification Information<sup>†</sup>

Qualification level	Consumer <sup>††</sup> (per JEDEC JESD47F <sup>†††</sup> guidelines)	
Moisture Sensitivity Level	SO-8	MSL1 (per JEDEC J-STD-020D <sup>†††</sup> )
RoHS Compliant	Yes	

<sup>†</sup> Qualification standards can be found at International Rectifier's web site

<http://www.irf.com/product-info/reliability>

<sup>††</sup> Higher qualification ratings may be available should the user have such requirements.

Please contact your International Rectifier sales representative for further information:

<http://www.irf.com/whoto-call/salesrep/>

<sup>†††</sup> Applicable version of JEDEC standard at the time of product release.

Data and specifications subject to change without notice.

International  
**IR** Rectifier

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