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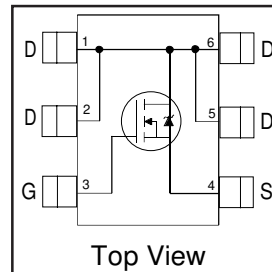
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



IRLMS2002

HEXFET® Power MOSFET

- Ultra Low On-Resistance
- N-Channel MOSFET
- Surface Mount
- Available in Tape & Reel
- 2.5V Rated

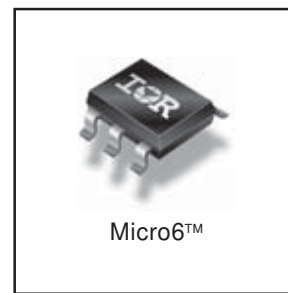


$V_{DSS} = 20V$
$R_{DS(on)} = 0.030\Omega$

Description

These N-Channel MOSFETs from International Rectifier utilize advanced processing techniques to achieve the extremely low on-resistance per silicon area. This benefit provides the designer with an extremely efficient device for use in battery and load management applications.

The Micro6™ package with its customized leadframe produces a HEXFET® power MOSFET with $R_{DS(on)}$ 60% less than a similar size SOT-23. This package is ideal for applications where printed circuit board space is at a premium. Its unique thermal design and $R_{DS(on)}$ reduction enables a current-handling increase of nearly 300% compared to the SOT-23.



Absolute Maximum Ratings

	Parameter	Max.	Units
V_{DS}	Drain- Source Voltage	20	V
$I_D @ T_A = 25^\circ C$	Continuous Drain Current, $V_{GS} @ 4.5V$	6.5	A
$I_D @ T_A = 70^\circ C$	Continuous Drain Current, $V_{GS} @ 4.5V$	5.2	
I_{DM}	Pulsed Drain Current ①	20	
$P_D @ T_A = 25^\circ C$	Power Dissipation	2.0	W
$P_D @ T_A = 70^\circ C$	Power Dissipation	1.3	
	Linear Derating Factor	0.016	W/°C
V_{GS}	Gate-to-Source Voltage	± 12	V
T_J, T_{STG}	Junction and Storage Temperature Range	-55 to + 150	°C

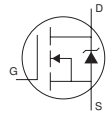
Thermal Resistance

	Parameter	Max.	Units
$R_{\theta JA}$	Maximum Junction-to-Ambient③	62.5	°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	—	0.016	—	V/°C	Reference to 25°C, I _D = 1mA
R _{DS(on)}	Static Drain-to-Source On-Resistance	—	—	0.030	Ω	V _{GS} = 4.5V, I _D = 6.5A ②
		—	—	0.045		V _{GS} = 2.5V, I _D = 5.2A ②
V _{GS(th)}	Gate Threshold Voltage	0.60	—	1.2	V	V _{DS} = V _{GS} , I _D = 250μA
g _{fs}	Forward Transconductance	13	—	—	S	V _{DS} = 10V, I _D = 6.5A
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	—	15	22	nC	I _D = 6.5A
Q _{gs}	Gate-to-Source Charge	—	2.2	3.3		V _{DS} = 10V
Q _{gd}	Gate-to-Drain ("Miller") Charge	—	3.5	5.3		V _{GS} = 5.0V ②
t _{d(on)}	Turn-On Delay Time	—	8.5	—	ns	V _{DD} = 10V
t _r	Rise Time	—	11	—		I _D = 1.0A
t _{d(off)}	Turn-Off Delay Time	—	36	—		R _G = 6.0Ω
t _f	Fall Time	—	16	—		R _D = 10Ω ②
C _{iss}	Input Capacitance	—	1310	—	pF	V _{GS} = 0V
C _{oss}	Output Capacitance	—	150	—		V _{DS} = 15V
C _{rss}	Reverse Transfer Capacitance	—	36	—		f = 1.0MHz

Source-Drain Ratings and Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I _S	Continuous Source Current (Body Diode)	—	—	2.0	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I _{SM}	Pulsed Source Current (Body Diode) ①	—	—	20		
V _{SD}	Diode Forward Voltage	—	—	1.2	V	T _J = 25°C, I _S = 1.7A, V _{GS} = 0V ②
t _{rr}	Reverse Recovery Time	—	19	29	ns	T _J = 25°C, I _F = 1.7A
Q _{rr}	Reverse Recovery Charge	—	13	20	nC	di/dt = 100A/μs ②

Notes:

① Repetitive rating; pulse width limited by max. junction temperature. (See fig. 11)

② Pulse width ≤ 400μs; duty cycle ≤ 2%.

③ Surface mounted on FR-4 board, t ≤ 5sec.

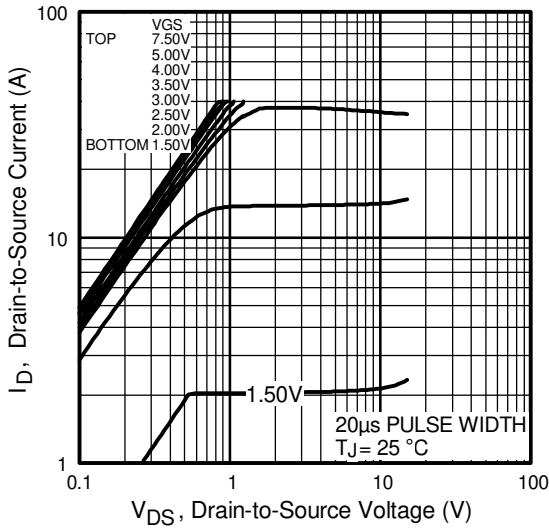


Fig 1. Typical Output Characteristics

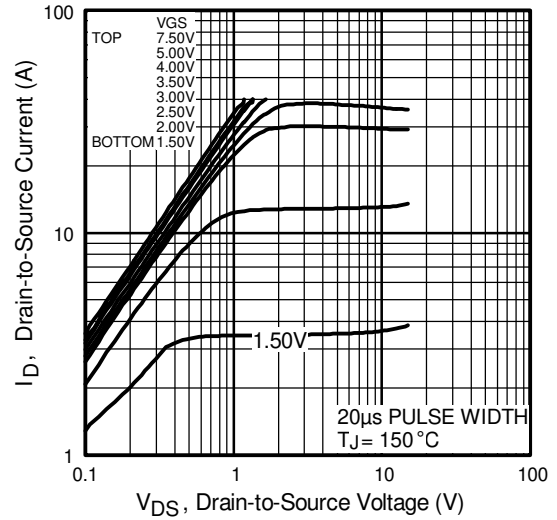


Fig 2. Typical Output Characteristics

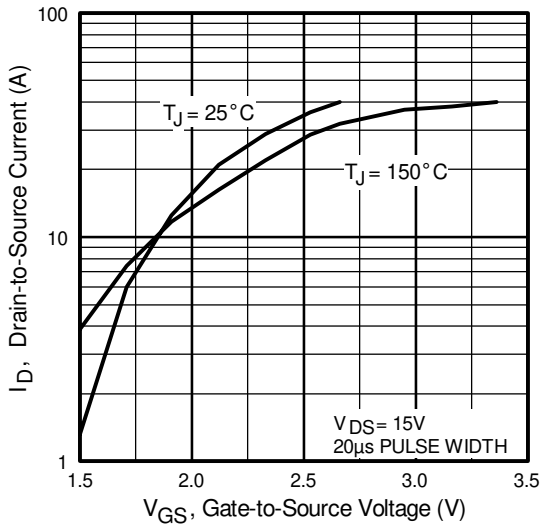


Fig 3. Typical Transfer Characteristics

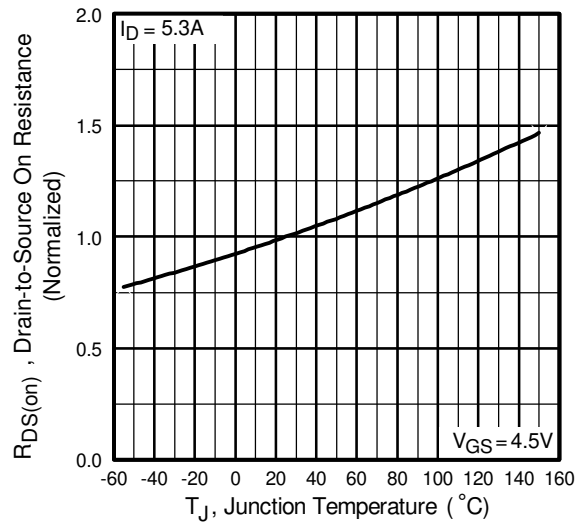


Fig 4. Normalized On-Resistance Vs. Temperature

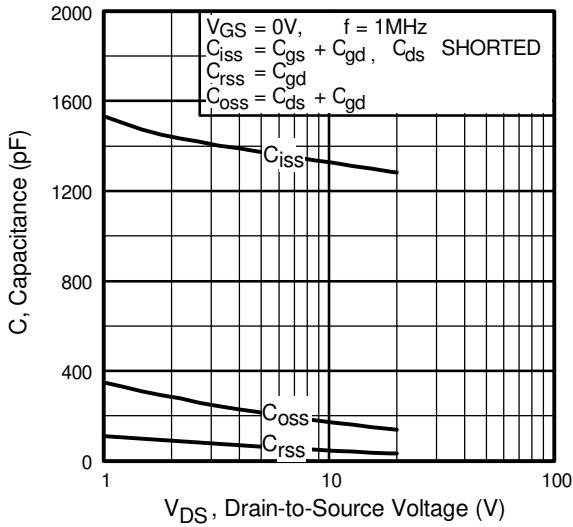


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

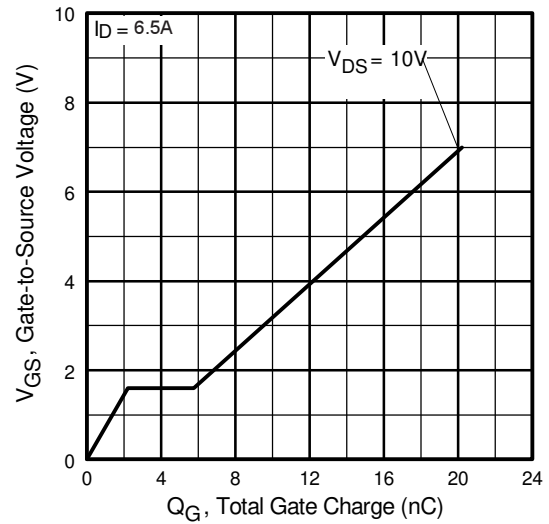


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

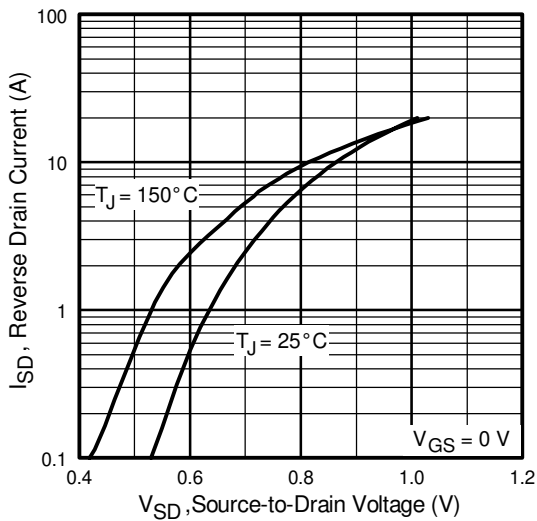


Fig 7. Typical Source-Drain Diode Forward Voltage

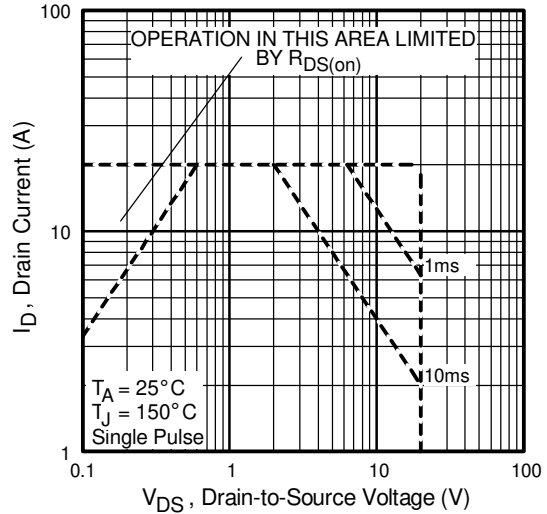


Fig 8. Maximum Safe Operating Area

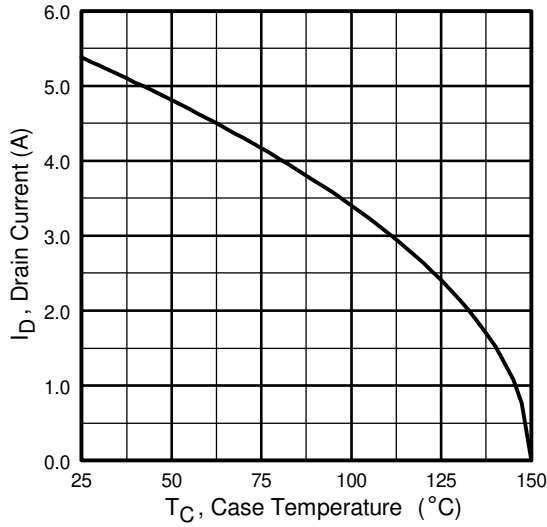


Fig 9. Maximum Drain Current Vs. Case Temperature

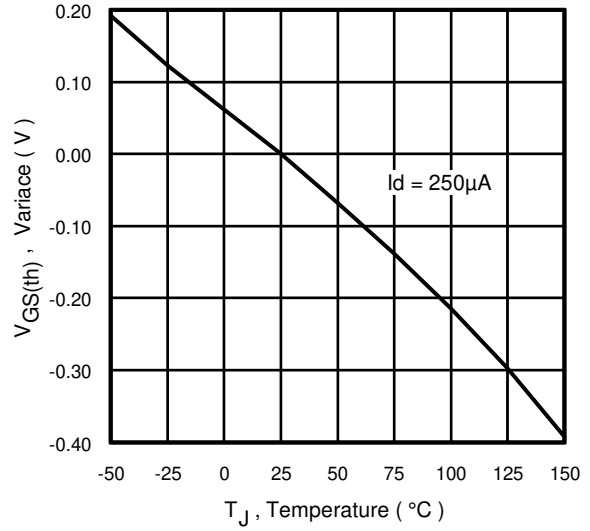


Fig 10. Typical $V_{GS(th)}$ Variance Vs. Junction Temperature

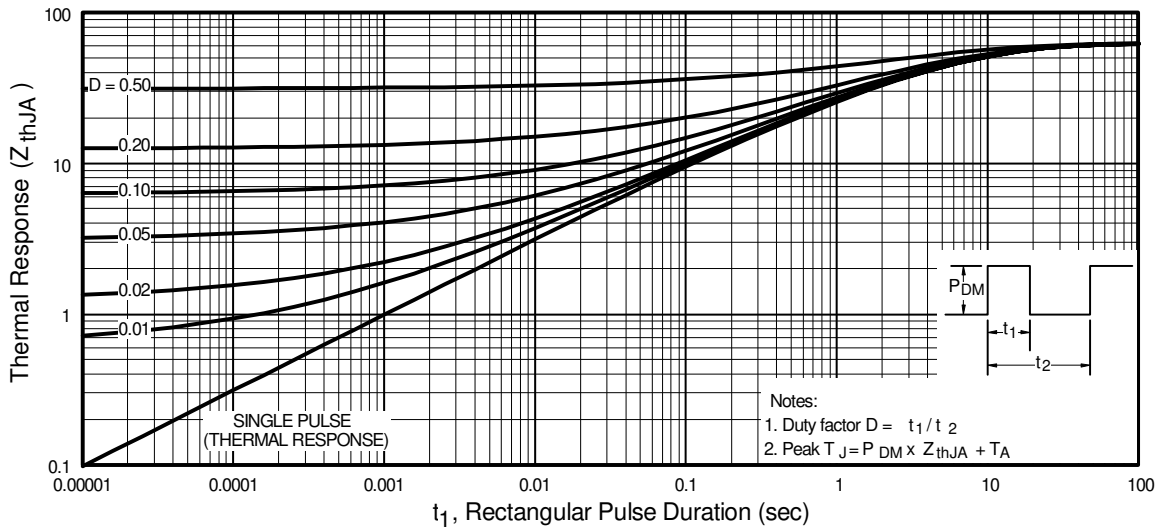


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

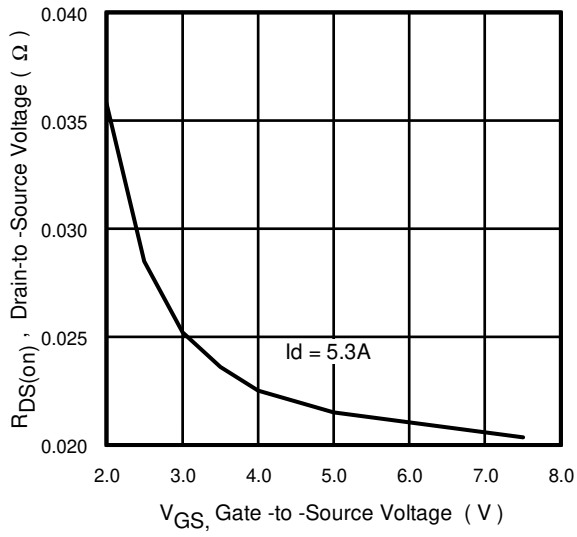


Fig 12. Typical On-Resistance Vs. Gate Voltage

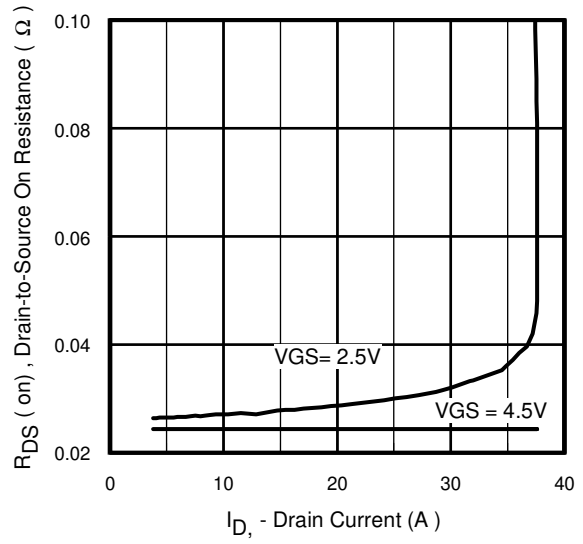
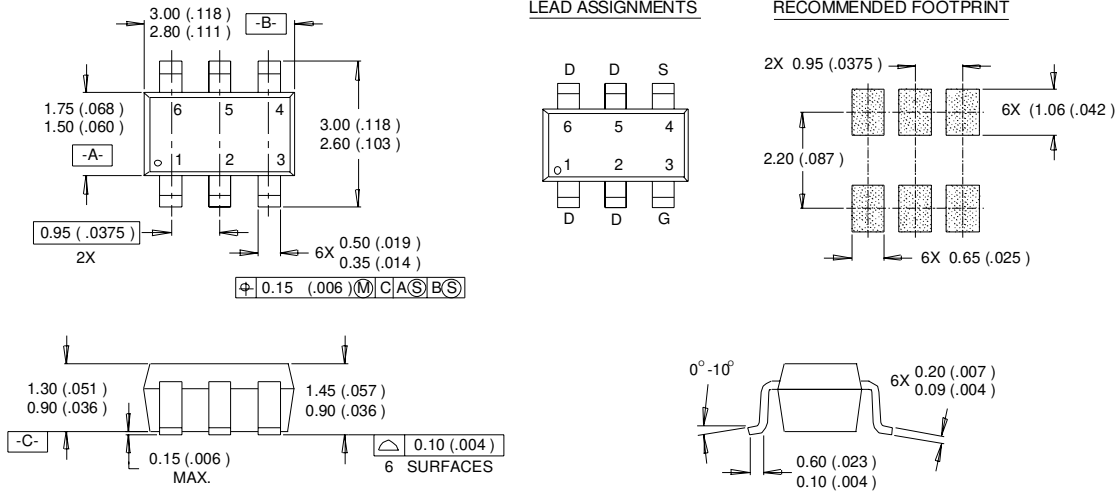


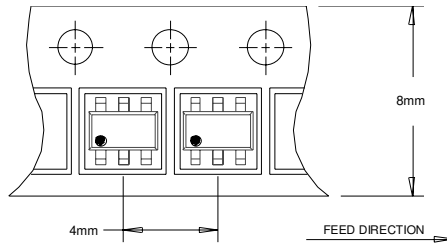
Fig 13. Typical On-Resistance Vs. Drain Current

Micro6™ Package Outline

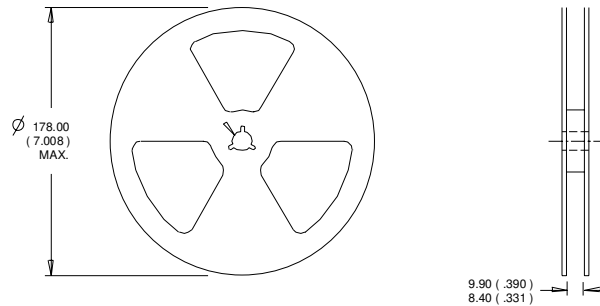


- NOTES :
1. DIMENSIONING & TOLERANCING PER ANSI Y14.5M-1982.
 2. CONTROLLING DIMENSION : MILLIMETER.
 3. DIMENSIONS ARE SHOWN IN MILLIMETERS (INCHES).

Micro6™ Tape & Reel Information



- NOTES :
1. OUTLINE CONFORMS TO EIA-481 & EIA-541.



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

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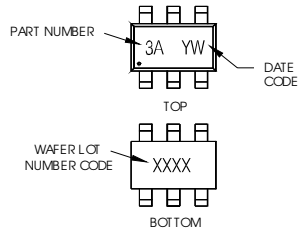
International
IR Rectifier

Micro6™ Part Marking Information

Notes: This part marking information applies to devices produced before 02/26/2001

EXAMPLE: THIS IS AN IRLMS6702

WW = (1-26) IF PRECEDED BY LAST DIGIT OF CALENDAR YEAR



YEAR	Y	WORK WEEK	W
2001	1	01	A
2002	2	02	B
2003	3	03	C
2004	4	04	D
2005	5		
1996	6		
1997	7		
1998	8		
1999	9		
2000	0	24	X
		25	Y
		26	Z

PART NUMBER CODE REFERENCE:

- 2A = IRLMS 1902
- 2B = IRLMS 1503
- 2C = IRLMS 6702
- 2D = IRLMS 5703
- 2E = IRLMS 6802
- 2F = IRLMS 4502
- 2G = IRLMS 2002
- 2H = IRLMS 6803

DATE CODE EXAMPLES:

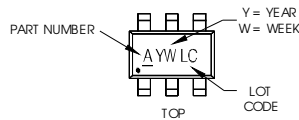
- YW = 9603 = 6C
- YW = 9632 = FF

WW = (27-52) IF PRECEDED BY A LETTER

YEAR	Y	WORK WEEK	W
2001	A	27	A
2002	B	28	B
2003	C	29	C
2004	D	30	D
2005	E		
1996	F		
1997	G		
1998	H		
1999	J		
2000	K	50	X
		51	Y
		52	Z

Notes: This part marking information applies to devices produced after 02/26/2001

W = (1-26) IF PRECEDED BY LAST DIGIT OF CALENDAR YEAR



YEAR	Y	WORK WEEK	W
2001	1	01	A
2002	2	02	B
2003	3	03	C
2004	4	04	D
2005	5		
1996	6		
1997	7		
1998	8		
1999	9		
2000	0	24	X
		25	Y
		26	Z

PART NUMBER CODE REFERENCE:

- A = IRLMS 1902
- B = IRLMS 1503
- C = IRLMS 6702
- D = IRLMS 5703
- E = IRLMS 6802
- F = IRLMS 4502
- G = IRLMS 2002
- H = IRLMS 6803

W = (27-52) IF PRECEDED BY A LETTER

YEAR	Y	WORK WEEK	W
2001	A	27	A
2002	B	28	B
2003	C	29	C
2004	D	30	D
2005	E		
1996	F		
1997	G		
1998	H		
1999	J		
2000	K	50	X
		51	Y
		52	Z

This product has been designed and qualified for the consumer market. Qualification Standards can be found on IR's Web site.

International
IR Rectifier

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Visit us at www.irf.com for sales contact information.
Data and specifications subject to change without notice. 01/03

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