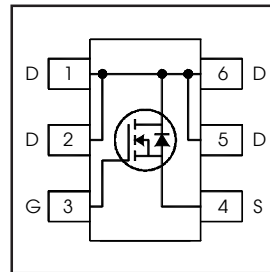


HEXFET® Power MOSFET

V_{DS}	200	V
$R_{DS(on) max}$ (@ $V_{GS} = 10V$)	2.20	Ω
Q_g (typical)	3.9	nC
I_D (@ $T_A = 25^\circ C$)	0.6	A



Features

Industry-standard pinout TSOP-6 Package
Compatible with Existing Surface Mount Techniques
RoHS Compliant, Halogen-Free
MSL1, Industrial qualification



Benefits

Multi-Vendor Compatibility
Easier Manufacturing
Environmentally Friendlier
Increased Reliability

Base Part Number	Package Type	Standard Pack		Orderable Part Number
		Form	Quantity	
IRF5801TRPbF-1	TSOP-6	Tape and Reel	3000	IRF5801TRPbF-1

Absolute Maximum Ratings

	Parameter	Max.	Units
$I_D @ T_A = 25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	0.6	A
$I_D @ T_A = 70^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	0.48	
I_{DM}	Pulsed Drain Current ①	4.8	
$P_D @ T_A = 25^\circ C$	Power Dissipation	2.0	W
	Linear Derating Factor	0.016	W/°C
V_{GS}	Gate-to-Source Voltage	± 30	V
dv/dt	Peak Diode Recovery dv/dt ②	9.6	V/ns
T_J	Operating Junction and Storage Temperature Range	-55 to + 150	°C
T_{STG}			

Thermal Resistance

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JA}$	Junction-to-Ambient ④	—	62.5	°C/W

Notes ① through ⑥ are on page 8

Static @ T_J = 25°C (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Conditions
V _{(BR)DSS}	Drain-to-Source Breakdown Voltage	200	—	—	V	V _{GS} = 0V, I _D = 250μA
ΔV _{(BR)DSS/ΔT_J}	Breakdown Voltage Temp. Coefficient	—	0.26	—	V/°C	Reference to 25°C, I _D = 1mA ③
R _{DS(on)}	Static Drain-to-Source On-Resistance	—	—	2.2	Ω	V _{GS} = 10V, I _D = 0.36A ③
V _{GS(th)}	Gate Threshold Voltage	3.0	—	5.5	V	V _{DS} = V _{GS} , I _D = 250μA
I _{DSS}	Drain-to-Source Leakage Current	—	—	25	μA	V _{DS} = 200V, V _{GS} = 0V
		—	—	250		V _{DS} = 160V, V _{GS} = 0V, T _J = 150°C
I _{GSS}	Gate-to-Source Forward Leakage	—	—	100	nA	V _{GS} = 30V
	Gate-to-Source Reverse Leakage	—	—	-100		V _{GS} = -30V

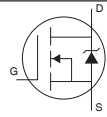
Dynamic @ T_J = 25°C (unless otherwise specified)

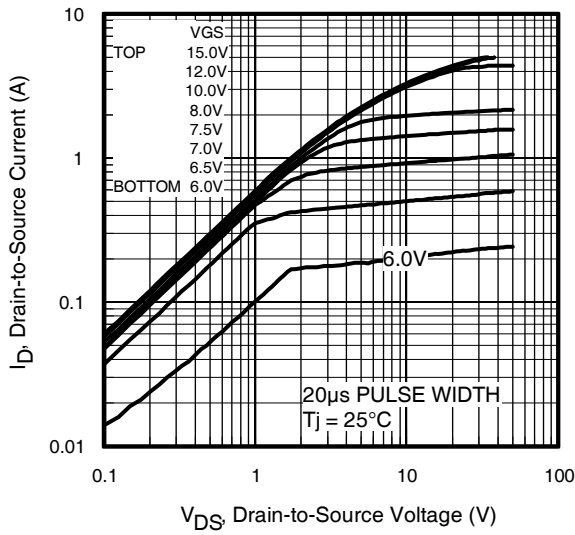
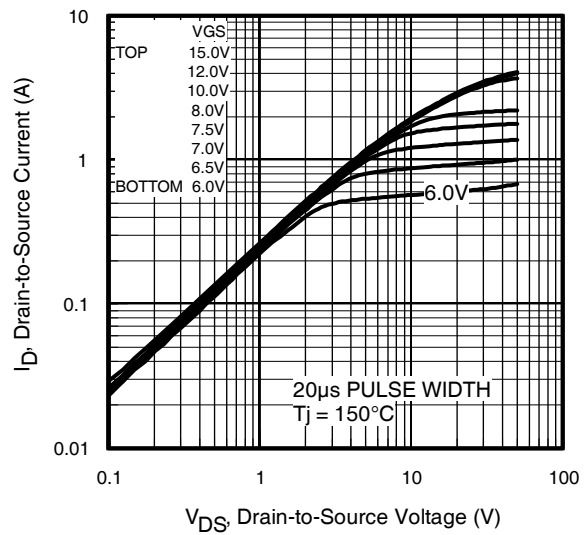
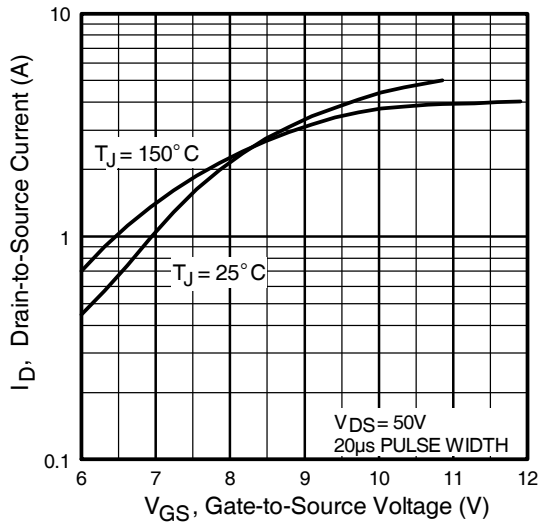
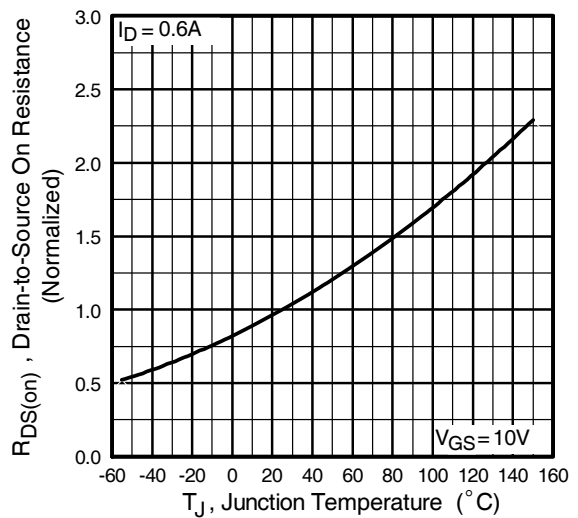
	Parameter	Min.	Typ.	Max.	Units	Conditions
g _{fs}	Forward Transconductance	0.44	—	—	S	V _{DS} = 50V, I _D = 0.36A
Q _g	Total Gate Charge	—	3.9	—	nC	I _D = 0.36A V _{DS} = 160V V _{GS} = 10V
Q _{gs}	Gate-to-Source Charge	—	0.8	—		
Q _{gd}	Gate-to-Drain ("Miller") Charge	—	2.2	—		
t _{d(on)}	Turn-On Delay Time	—	6.5	—	ns	V _{DD} = 100V I _D = 0.36A R _G = 53Ω V _{GS} = 10V ③
t _r	Rise Time	—	8.0	—		
t _{d(off)}	Turn-Off Delay Time	—	8.8	—		
t _f	Fall Time	—	19	—		
C _{iss}	Input Capacitance	—	88	—	pF	V _{GS} = 0V V _{DS} = 25V f = 1.0MHz V _{GS} = 0V, V _{DS} = 1.0V, f = 1.0MHz V _{GS} = 0V, V _{DS} = 160V, f = 1.0MHz V _{GS} = 0V, V _{DS} = 0V to 160V ③
C _{oss}	Output Capacitance	—	18	—		
C _{rss}	Reverse Transfer Capacitance	—	6.3	—		
C _{oss}	Output Capacitance	—	102	—		
C _{oss}	Output Capacitance	—	8.4	—		
C _{oss eff.}	Effective Output Capacitance	—	26	—		

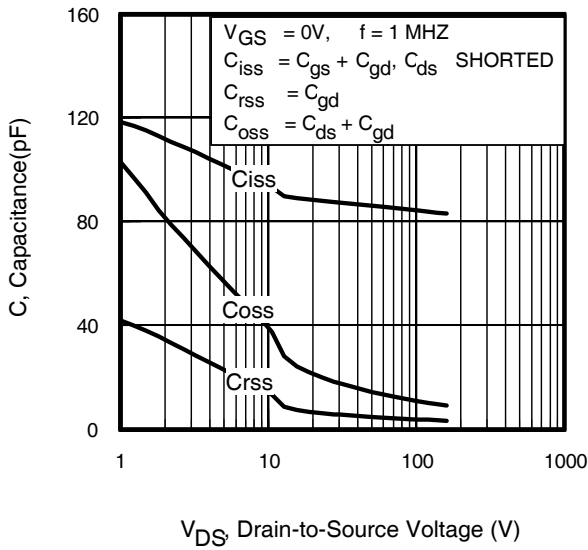
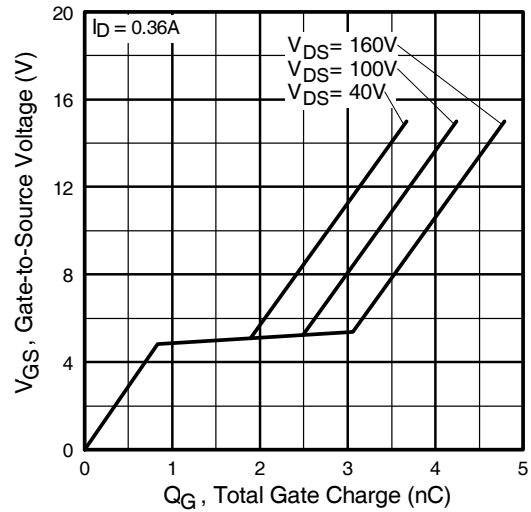
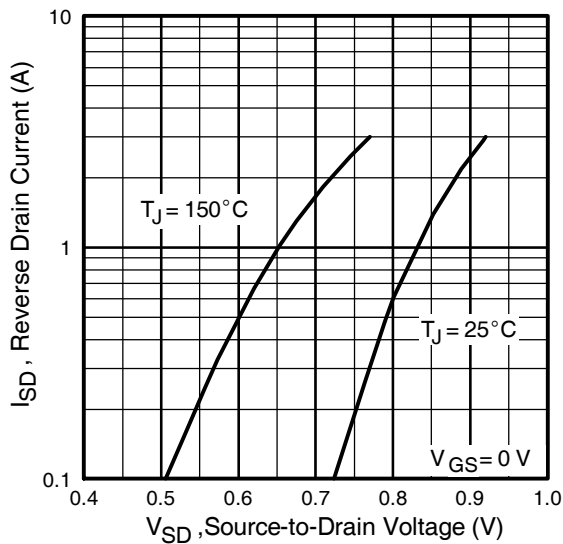
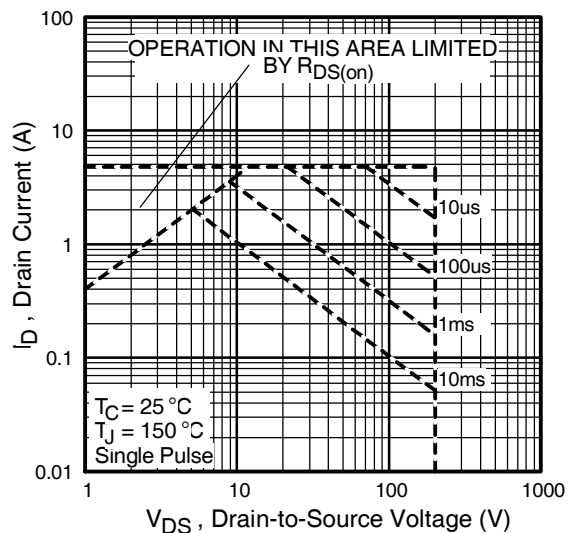
Avalanche Characteristics

	Parameter	Typ.	Max.	Units
E _{AS}	Single Pulse Avalanche Energy②	—	9.9	mJ
I _{AR}	Avalanche Current①	—	0.6	A

Diode Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I _S	Continuous Source Current (Body Diode)	—	—	1.8	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I _{SM}	Pulsed Source Current (Body Diode) ①	—	—	4.8		
V _{SD}	Diode Forward Voltage	—	—	1.3	V	T _J = 25°C, I _S = 0.36A, V _{GS} = 0V ③
t _{rr}	Reverse Recovery Time	—	45	—	ns	T _J = 25°C, I _F = 0.36A
Q _{rr}	Reverse Recovery Charge	—	54	—	nC	di/dt = 100A/μs ③


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

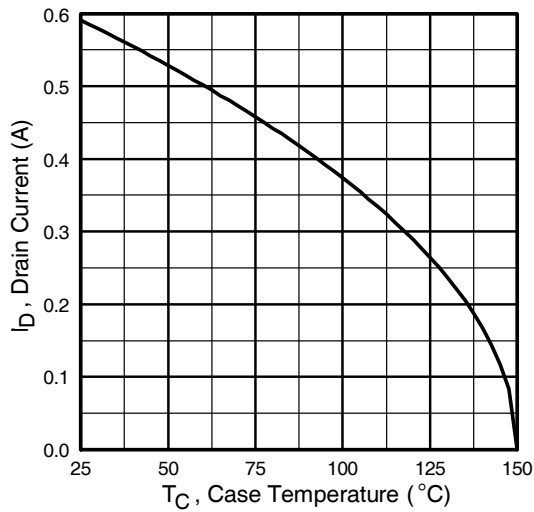


Fig 9. Maximum Drain Current Vs. Case Temperature

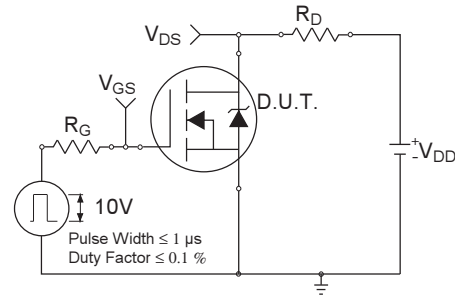


Fig 10a. Switching Time Test Circuit

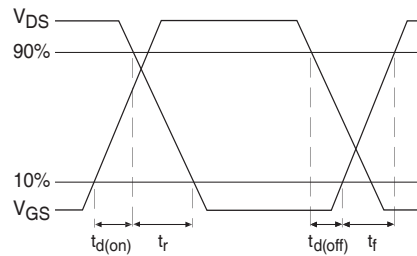


Fig 10b. Switching Time Waveforms

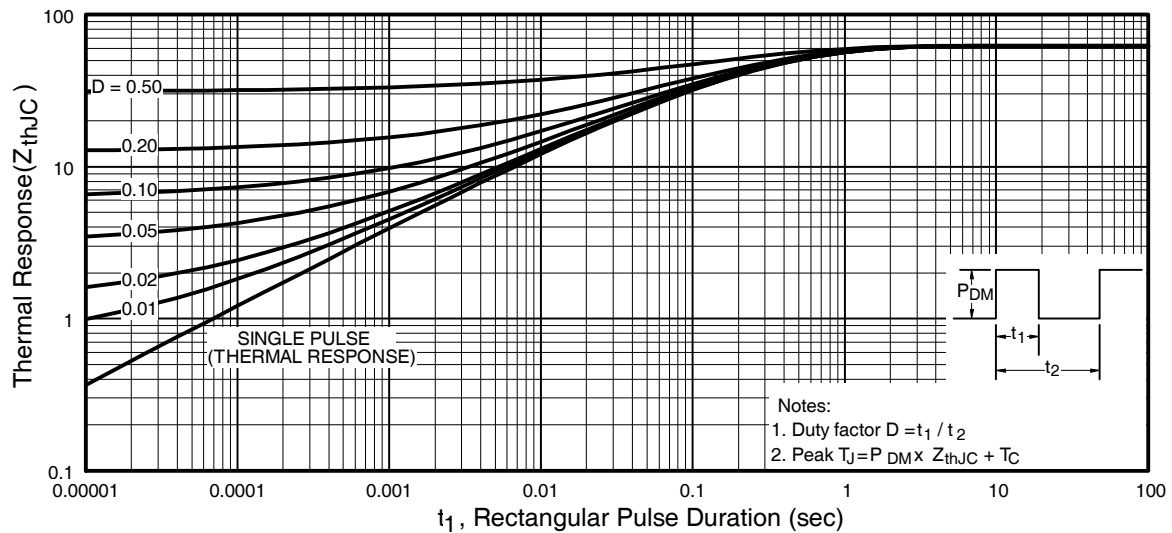
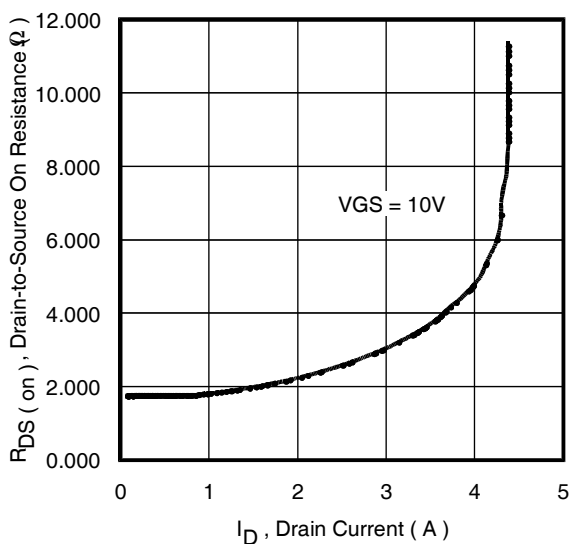
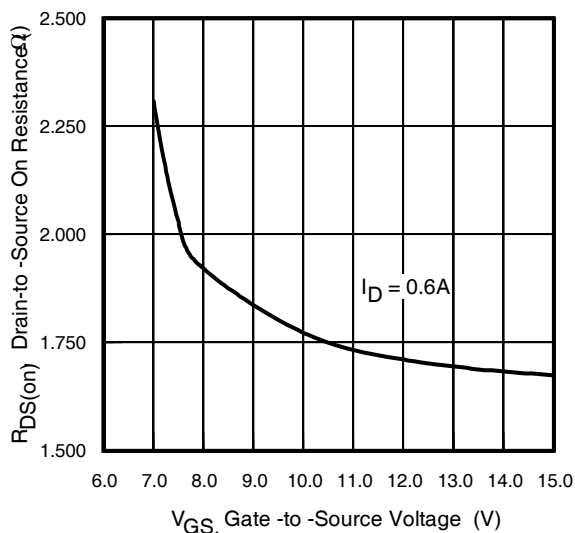
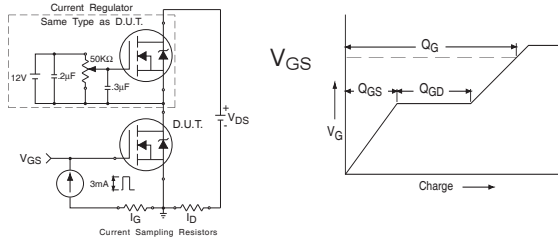
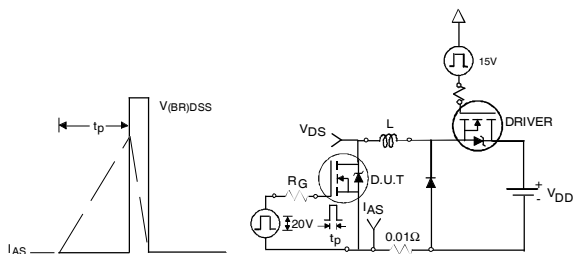
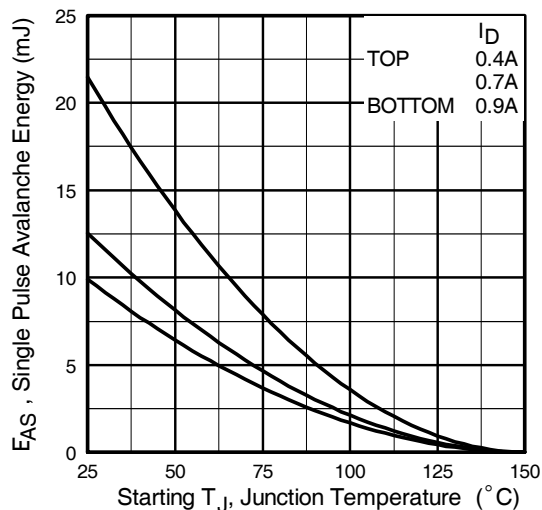
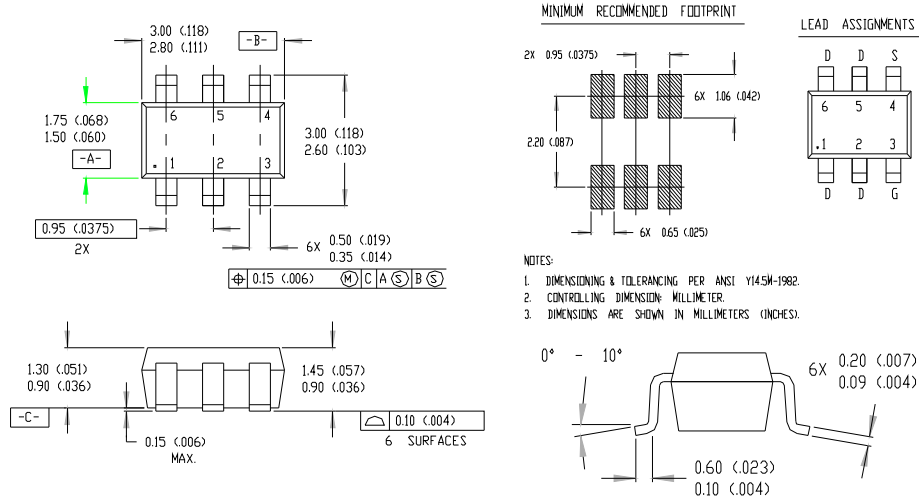


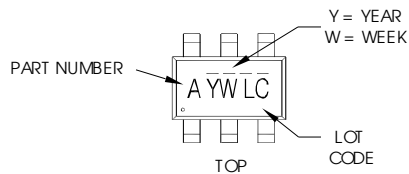
Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient


Fig 12. On-Resistance Vs. Drain Current

Fig 13. On-Resistance Vs. Gate Voltage

Fig 14a&b. Basic Gate Charge Test Circuit and Waveform

Fig 15a&b. Unclamped Inductive Test circuit and Waveforms

Fig 15c. Maximum Avalanche Energy Vs. Drain Current

TSOP-6 Package Outline



TSOP-6 Part Marking Information



PART NUMBER CODE REFERENCE:

- A = SI3443DV O = IRLTS6342TRPBF
- B = IRF5800 P = IRF5800
- C = IRF5850 R = IRF5850
- D = IRF5851 S = Not applicable
- E = IRF5852 T = IRLTS2242TRPBF
- F = IRF5801
- G = IRF5803
- H = IRF5804
- I = IRF5805
- J = IRF5806
- K = IRF5810
- N = IRF5802

Note: A line above the work week (as shown here) indicates Lead-Free.

DATE CODE MARKING INSTRUCTIONS

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

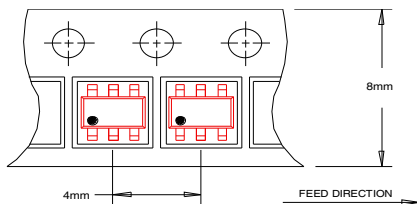
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2011	2001	1	01	A
2012	2002	2	02	B
2013	2003	3	03	C
2014	2004	4	04	D
2015	2005	5		
2016	2006	6		
2017	2007	7		
2018	2008	8		
2019	2009	9		
2020	2010	0	24	X
			25	Y
			26	Z

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

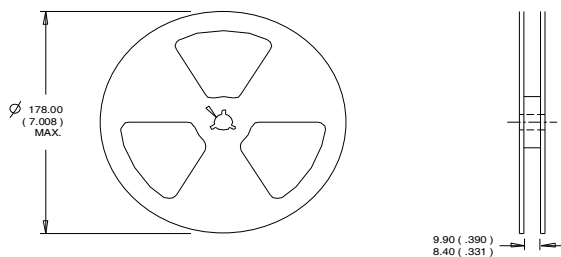
YEAR	Y	WCRK WEEK	W	
2011	2001	A	27	A
2012	2002	B	28	B
2013	2003	C	29	C
2014	2004	D	30	D
2015	2005	E		
2016	2006	F		
2017	2007	G		
2018	2008	H		
2019	2009	J		
2020	2010	K	50	X
			51	Y
			52	Z

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

TSOP-6 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.

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

Notes:

- ① Repetitive rating; pulse width limited by max. junction temperature.
- ② Starting $T_J = 25^\circ\text{C}$, $L = 27\text{mH}$, $R_G = 25\Omega$, $I_{AS} = 0.36\text{A}$.
- ③ Pulse width $\leq 400\mu\text{s}$; duty cycle $\leq 2\%$.
- ④ When mounted on 1 inch square copper board, $t < 10\text{sec}$.
- ⑤ C_{OSS} eff. is a fixed capacitance that gives the same charging time as C_{OSS} while V_{DS} is rising from 0 to 80% V_{DSS} .
- ⑥ $I_{SD} \leq 0.36\text{A}$, $di/dt \leq 93\text{A}/\mu\text{s}$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 150^\circ\text{C}$.

Qualification information[†]

Qualification level	Industrial (per JEDEC JESD47F ^{††} guidelines)	
Moisture Sensitivity Level	TSOP-6	M5L1 (per JEDEC J-STD-020D ^{††})
RoHS compliant	Yes	

[†] Qualification standards can be found at International Rectifier's web site: <http://www.irf.com/product-info/reliability>

^{††} Applicable version of JEDEC standard at the time of product release

International
 Rectifier

IR WORLD HEADQUARTERS: 101 N. Sepulveda Blvd., El Segundo, California 90245, USA
 To contact International Rectifier, please visit <http://www.irf.com/whoto-call/>

单击下面可查看定价，库存，交付和生命周期等信息

[>>Infineon Technologies\(英飞凌\)](#)