



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!



Contact us

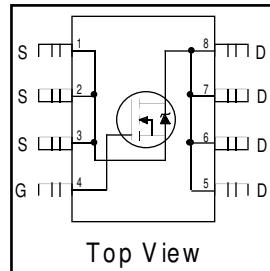
Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

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



- Generation V Technology
- Ultra Low On-Resistance
- N-Channel MOSFET
- Surface Mount
- Very Low Gate Charge and Switching Losses
- Fully Avalanche Rated



$V_{DS} = 30V$

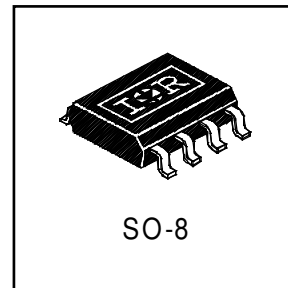
$R_{DS(on)} = 0.030\Omega$

Description

Fifth Generation HEXFETs from International Rectifier utilize advanced processing techniques to achieve extremely low on-resistance per silicon area. This benefit, combined with the fast switching speed and ruggedized device design that HEXFET Power MOSFETs are well known for, provides the designer with an extremely efficient and reliable device for use in a wide variety of applications.

The SO-8 has been modified through a customized leadframe for enhanced thermal characteristics and multiple-die capability making it ideal in a variety of power applications. With these improvements, multiple devices can be used in an application with dramatically reduced board space. The package is designed for vapor phase, infra red, or wave soldering techniques.

Recommended upgrade: IRF7403 or IRF7413
 Lower profile/smaller equivalent: IRF7603



Absolute Maximum Ratings (T_A = 25°C Unless Otherwise Noted)

	Symbol	Maximum	Units
Drain-Source Voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GS}	± 20	
Continuous Drain Current ^⑤	T _A = 25°C	7.0	A
	T _A = 70°C	5.8	
Pulsed Drain Current	I _{DM}	37	
Continuous Source Current (Diode Conduction)	I _S	2.8	W
Maximum Power Dissipation ^⑤	T _A = 25°C	2.5	
	T _A = 70°C	1.6	
Single Pulse Avalanche Energy ^②	E _{AS}	70	mJ
Avalanche Current	I _{AR}	4.2	A
Repetitive Avalanche Energy	E _{AR}	0.25	mJ
Peak Diode Recovery dv/dt ^③	dv/dt	5.0	V/ ns
Junction and Storage Temperature Range	T _J , T _{STG}	-55 to + 150	°C

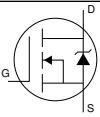
Thermal Resistance Ratings

Parameter	Symbol	Limit	Units
Maximum Junction-to-Ambient ^⑤	R _{θJA}	50	°C/W

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

	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	30	—	—	V	$V_{GS} = 0V, I_D = 250\mu A$
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	—	0.024	—	$V/^\circ\text{C}$	Reference to $25^\circ\text{C}, I_D = 1\text{mA}$
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	—	0.024	0.030	Ω	$V_{GS} = 10V, I_D = 7.0A$ ④
		—	0.032	0.040		$V_{GS} = 5.0V, I_D = 4.0A$ ④
		—	0.037	0.050		$V_{GS} = 4.5V, I_D = 3.5A$ ④
$V_{GS(th)}$	Gate Threshold Voltage	1.0	—	—	V	$V_{DS} = V_{GS}, I_D = 250\mu A$
g_{fs}	Forward Transconductance	—	14	—	S	$V_{DS} = 15V, I_D = 7.0A$
I_{DSS}	Drain-to-Source Leakage Current	—	—	2.0	μA	$V_{DS} = 24V, V_{GS} = 0V$
		—	—	25		$V_{DS} = 24V, V_{GS} = 0V, T_J = 55^\circ\text{C}$
I_{GSS}	Gate-to-Source Forward Leakage	—	—	100	nA	$V_{GS} = 20V$
	Gate-to-Source Reverse Leakage	—	—	-100		$V_{GS} = -20V$
Q_g	Total Gate Charge	—	18	27	nC	$I_D = 2.0A$
Q_{gs}	Gate-to-Source Charge	—	2.4	3.6		$V_{DS} = 15V$
Q_{gd}	Gate-to-Drain ("Miller") Charge	—	4.9	7.4		$V_{GS} = 10V$, See Fig. 10 ④
$t_{d(on)}$	Turn-On Delay Time	—	7.3	15	ns	$V_{DD} = 25V$
t_r	Rise Time	—	8.3	17		$I_D = 1.0A$
$t_{d(off)}$	Turn-Off Delay Time	—	23	46		$R_G = 6.0\Omega, V_{GS} = 10V$
t_f	Fall Time	—	17	34		$R_D = 25\Omega$ ④
C_{iss}	Input Capacitance	—	550	—	pF	$V_{GS} = 0V$
C_{oss}	Output Capacitance	—	260	—		$V_{DS} = 25V$
C_{rss}	Reverse Transfer Capacitance	—	100	—		$f = 1.0\text{MHz}$, See Fig. 9

Source-Drain Ratings and Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	—	—	2.8	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode) ①	—	—	37		
V_{SD}	Diode Forward Voltage	—	0.78	1.0	V	$T_J = 25^\circ\text{C}, I_S = 2.0A, V_{GS} = 0V$ ③
t_{rr}	Reverse Recovery Time	—	40	80	ns	$T_J = 25^\circ\text{C}, I_F = 2.0A$
Q_{rr}	Reverse Recovery Charge	—	63	130	nC	$di/dt = 100A/\mu s$ ③

Notes:

- ① Repetitive rating; pulse width limited by max. junction temperature. (See fig. 11)
- ② Starting $T_J = 25^\circ\text{C}$, $L = 6.6\text{mH}$
 $R_G = 25\Omega, I_{AS} = 4.6A$.
- ③ $I_{SD} \leq 4.6A, di/dt \leq 120A/\mu s, V_{DD} \leq V_{(BR)DSS}, T_J \leq 150^\circ\text{C}$
- ④ Pulse width $\leq 300\mu s$; duty cycle $\leq 2\%$.
- ⑤ Surface mounted on FR-4 board, $t \leq 10\text{sec}$.

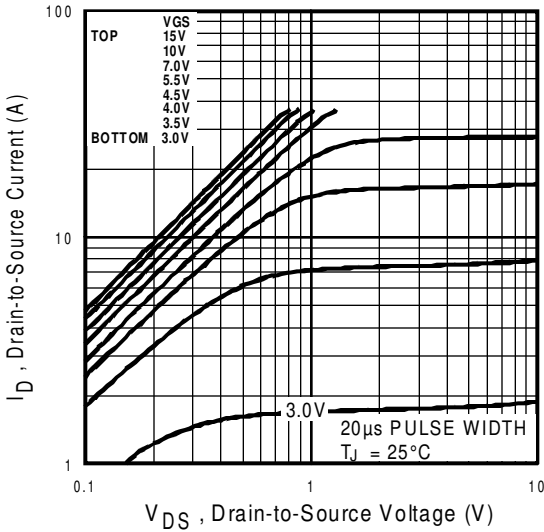


Fig 1. Typical Output Characteristics

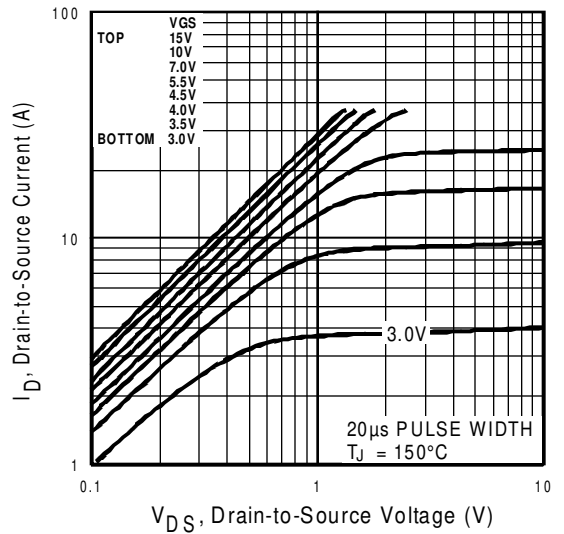


Fig 2. Typical Output Characteristics

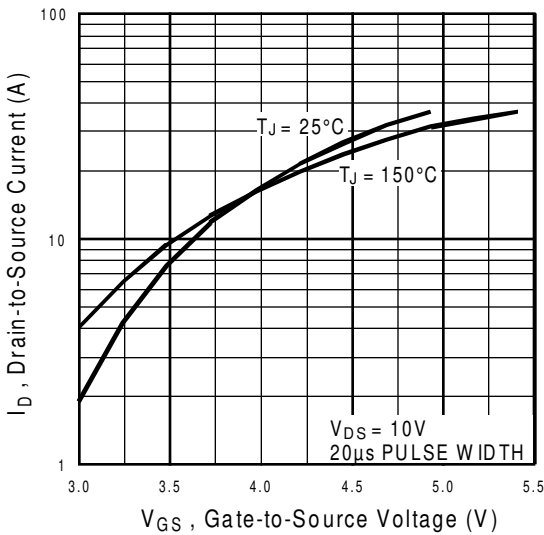


Fig 3. Typical Transfer Characteristics

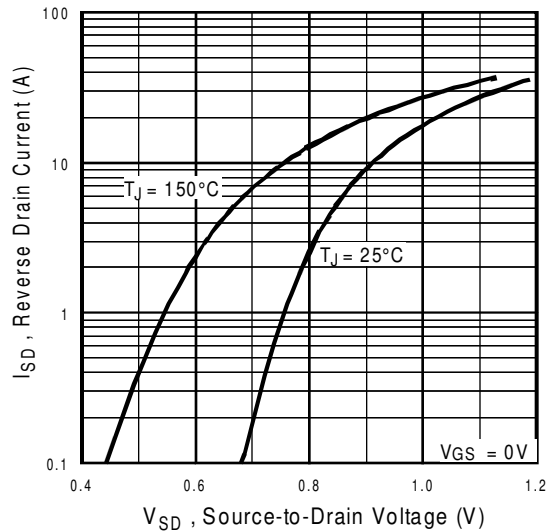


Fig 4. Typical Source-Drain Diode Forward Voltage

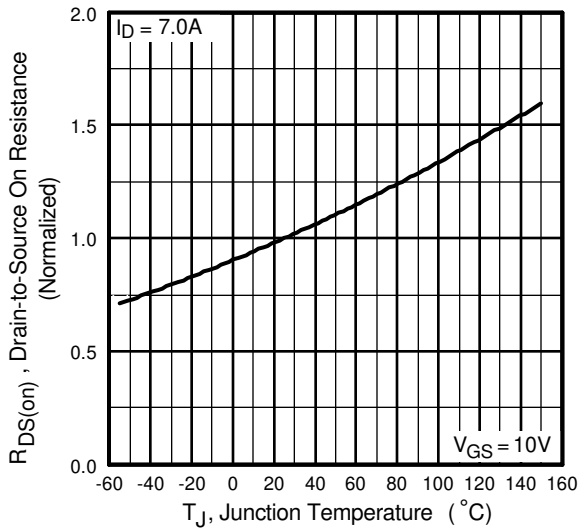


Fig 5. Normalized On-Resistance Vs. Temperature

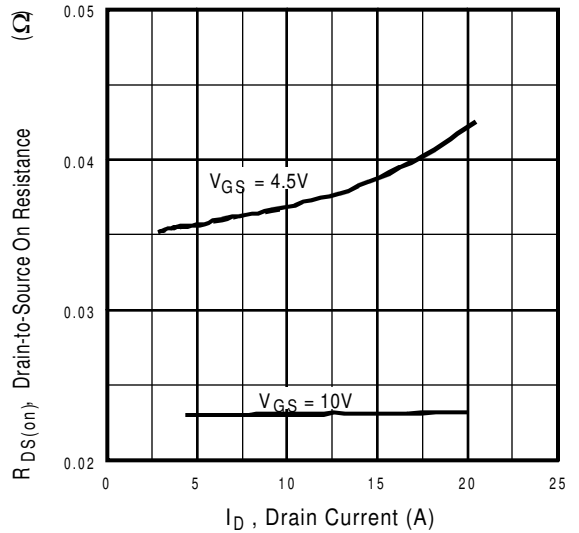


Fig 6. Typical On-Resistance Vs. Drain Current

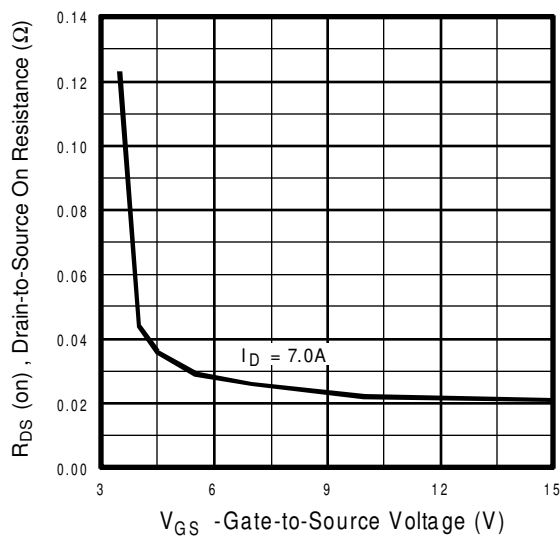


Fig 7. Typical On-Resistance Vs. Gate Voltage

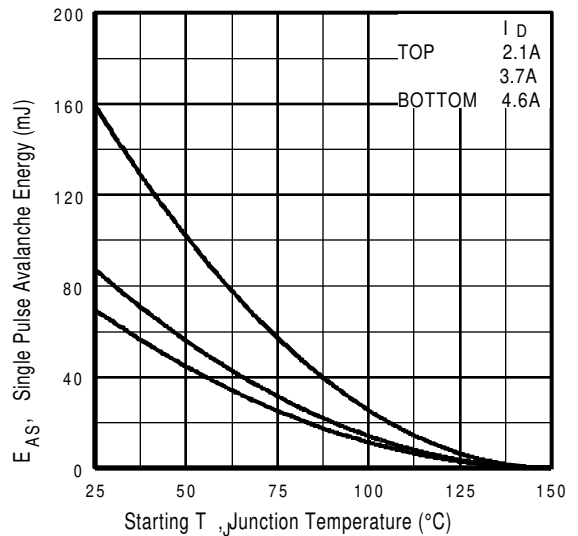


Fig 8. Maximum Avalanche Energy Vs. Drain Current

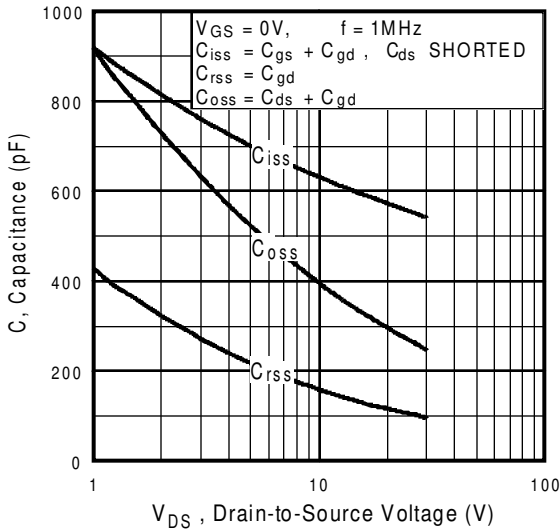


Fig 9. Typical Capacitance Vs. Drain-to-Source Voltage

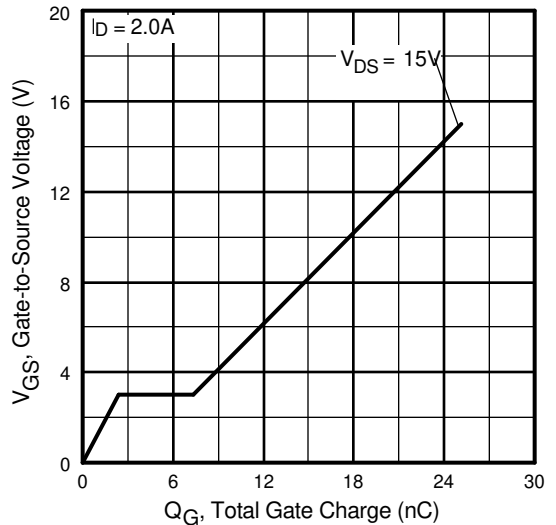


Fig 10. Typical Gate Charge Vs. Gate-to-Source Voltage

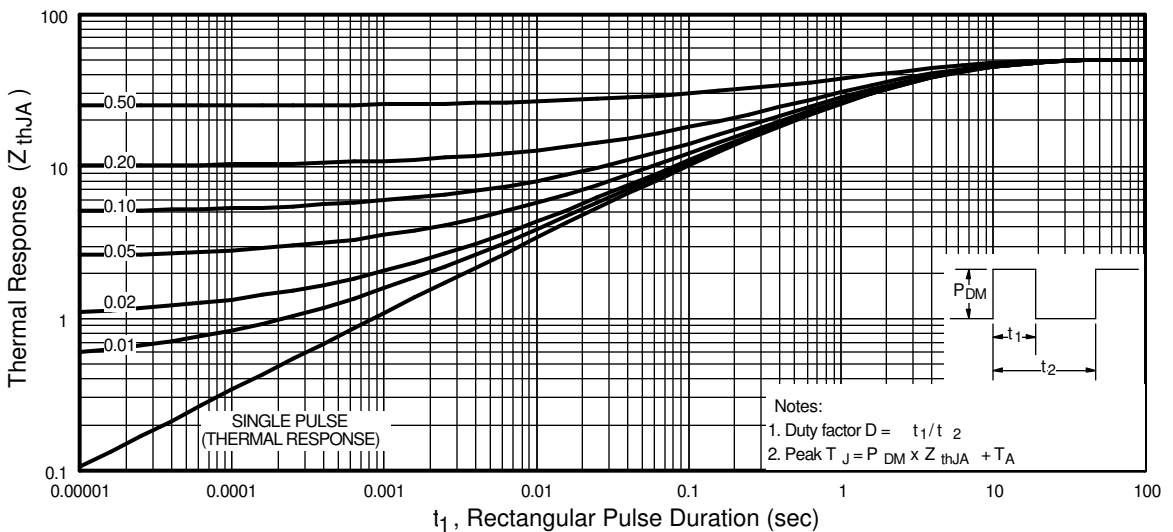
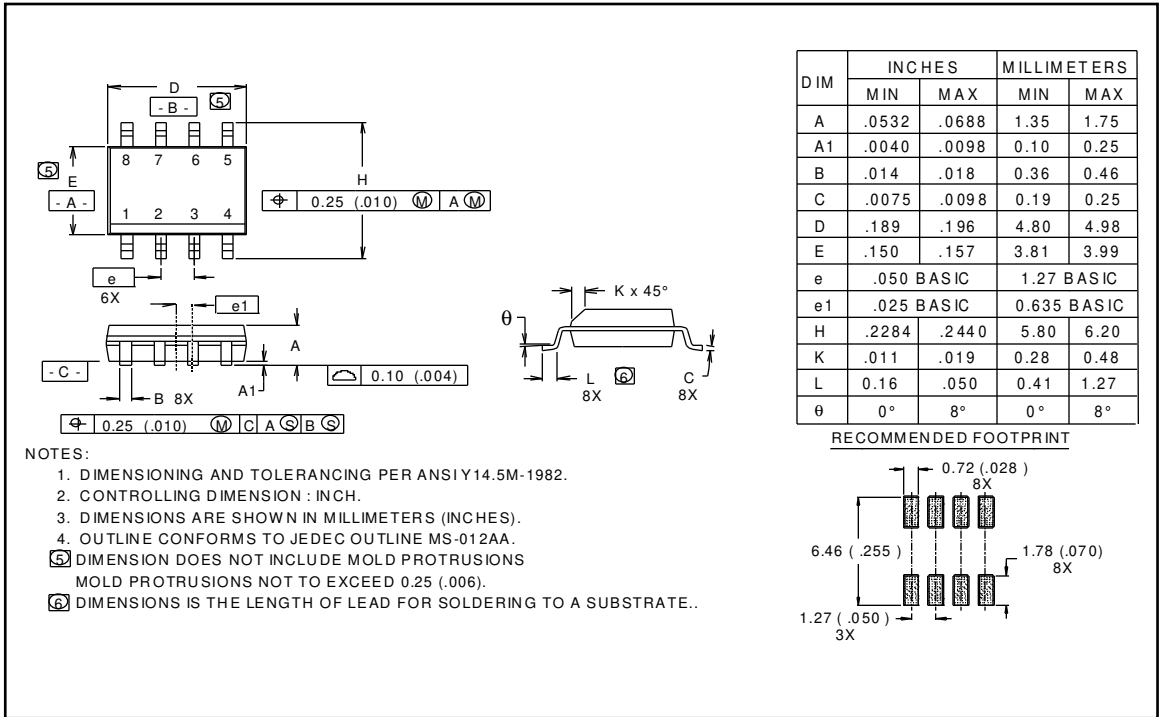


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

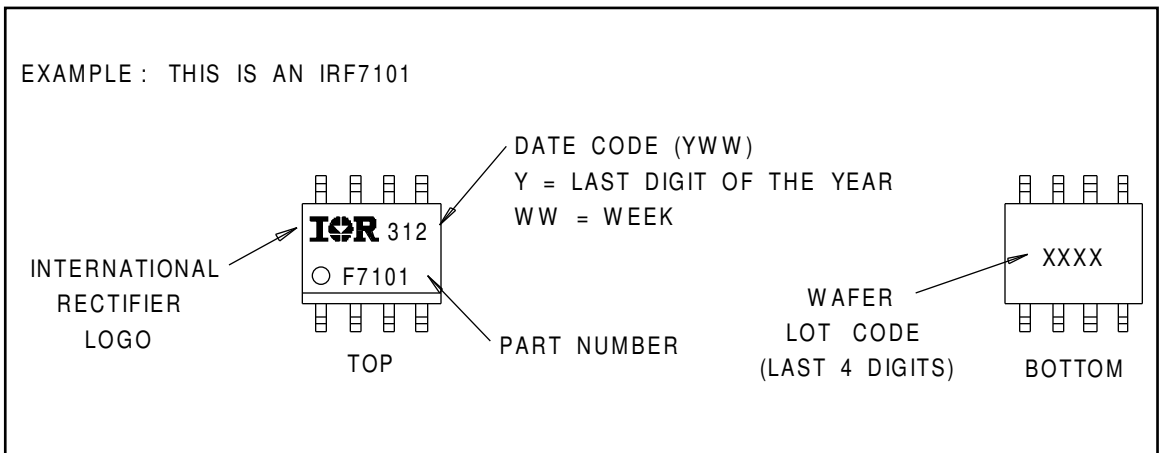
Package Outline

S08 Outline



Part Marking Information

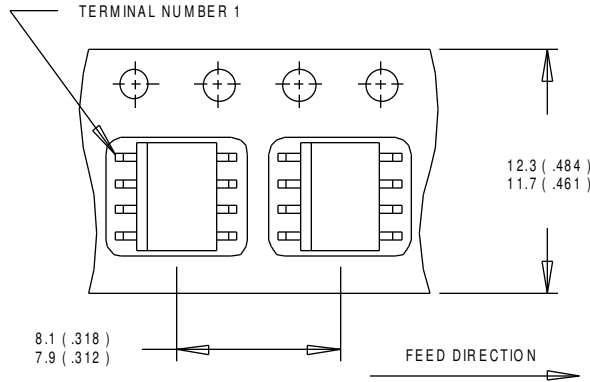
S08



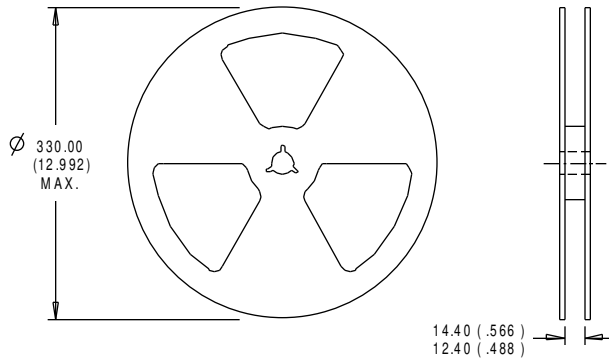
Tape & Reel Information

S08

Dimensions are shown in millimeters (inches)



- 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.