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.

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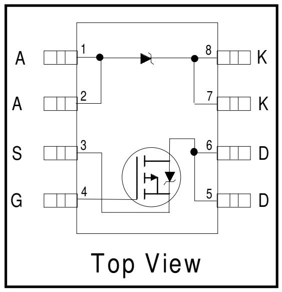
PD-93864

International
IOR Rectifier

IRF7534D1

FETKY MOSFET & Schottky Diode

- Co-packaged HEXFET® power MOSFET and Schottky diode
- Ultra Low On-Resistance MOSFET
- Trench technology
- Micro8™ Footprint
- Available in Tape & Reel



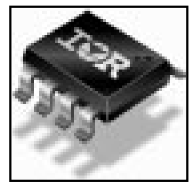
V_{DSS} = -20V

$R_{DS(on)}$ = 0.055Ω

Schottky Vf=0.39V

Description

The FETKY family of co-packaged MOSFETs and Schottky diodes offers the designer an innovative, board space saving solution for switching regulator and power management applications. International Rectifier utilizes advanced processing techniques to achieve extremely low on-resistance per silicon area. Combining this technology with International Rectifier's low forward drop Schottky rectifiers results in an extremely efficient device suitable for use in a wide variety of portable electronics applications, such as cell phones, PDAs, etc.



Micro8™

The Micro8™ package makes an ideal device for applications where printed circuit board space is at a premium. The low profile (<1.1mm) of the Micro8™ will allow it to fit easily into extremely thin application environments such as portable electronics

Absolute Maximum Ratings

	Parameter	Max.	Units
V_{DS}	Drain-Source Voltage	-20	V
I_D @ T_A = 25°C	Continuous Drain Current, V_{GS} @ -4.5V	-4.3	A
I_D @ T_A = 70°C	Continuous Drain Current, V_{GS} @ -4.5V	-3.4	
I_{DM}	Pulsed Drain Current①	-34	
P_D @T_A = 25°C	Maximum Power Dissipation④	1.25	W
P_D @T_A = 70°C	Maximum Power Dissipation④	0.8	W
	Linear Derating Factor	10	mW/°C
V_{GS}	Gate-to-Source Voltage	± 12	V
dv/dt	Peak Diode Recovery dv/dt ②	1.1	V/ns
T_J , T_{STG}	Junction and Storage Temperature Range	-55 to + 150	°C

Thermal Resistance

	Parameter Max.	Units	
$R_{θJA}$	Maximum Junction-to-Ambient ④	100	°C/W

Notes:

① Repetitive rating – pulse width limited by max. junction temperature (see Fig. 9)

② I_{SD} ≤ -1.2A, di/dt ≤ 100A/µs, V_{DD} ≤ $V_{(BR)DSS}$, T_J ≤ 150°C

③ Pulse width ≤ 300µs – duty cycle ≤ 2%

④ When mounted on 1 inch square copper board to approximate typical multi-layer PCB thermal resistance

3/22/00

MOSFET 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
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	——	——	0.055	Ω	V_{GS} = -4.5V, I_D = -4.3A ③
		——	——	0.105		V_{GS} = -2.5V, I_D = -3.4A ③
$V_{GS(th)}$	Gate Threshold Voltage	-0.6	——	-1.2	V	V_{DS} = V_{GS}, I_D = -250µA
g_{fs}	Forward Transconductance	2.5	——	——	S	V_{DS} = -10V, I_D = -0.8A
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 = 125°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	——	10	15	nC	I_D = -3A
Q_{gs}	Gate-to-Source Charge	——	2.1	3.1		V_{DS} = -10V
Q_{gd}	Gate-to-Drain ("Miller") Charge	——	2.5	3.7		V_{GS} = -5V
$t_{d(on)}$	Turn-On Delay Time	——	10	——	ns	V_{DD} = -10V
t_r	Rise Time	——	46	——		I_D = -2A
$t_{d(off)}$	Turn-Off Delay Time	——	60	——		R_G = 6.0Ω
t_f	Fall Time	——	64	——		R_D = 5Ω, ③
C_{iss}	Input Capacitance	——	1066	——	pF	V_{GS} = 0V
C_{oss}	Output Capacitance	——	402	——		V_{DS} = -10V
C_{rss}	Reverse Transfer Capacitance	——	125	——		ƒ = 1.0MHz

MOSFET Source-Drain Ratings and Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current(Body Diode)	——	——	-1.3	A	
I_{SM}	Pulsed Source Current (Body Diode)	——	——	-34		
V_{SD}	Body Diode Forward Voltage	——	——	-1.2	V	T_J = 25°C, I_S = -1.6A, V_{GS} = 0V
t_{rr}	Reverse Recovery Time (Body Diode)	——	54	82	ns	T_J = 25°C, I_F = -2.5A
Q_{rr}	Reverse Recovery Charge	——	41	61	nC	di/dt = 100A/µs ③

Schottky Diode Maximum Ratings

	Parameter	Max.	Units	Conditions	
$I_{F(av)}$	Max. Average Forward Current	1.9	A	50% Duty Cycle. Rectangular Wave, T_A = 25°C	
		1.4		See Fig.13 T_A = 70°C	
I_{SM}	Max. peak one cycle Non-repetitive Surge current	120	A	5µs sine or 3µs Rect. pulse	Following any rated load condition & with V_{RRM} applied
		11		10ms sine or 6ms Rect. pulse	

Schottky Diode Electrical Specifications

	Parameter	Max.	Units	Conditions	
V_{FM}	Max. Forward voltage drop	0.50	V	I_F = 1.0A, T_J = 25°C	
		0.62		I_F = 2.0A, T_J = 25°C	
		0.39		I_F = 1.0A, T_J = 125°C	
		0.57		I_F = 2.0A, T_J = 125°C .	
I_{RM}	Max. Reverse Leakage current	0.02	mA	V_R = 20V	T_J = 25°C
		8			T_J = 125°C
C_t	Max. Junction Capacitance	92	pF	V_R = 5Vdc (100kHz to 1 MHz) 25°C	
dv/dt	Max. Voltage Rate of Charge	3600	V/ µs	Rated V_R	

(HEXFET is the reg. TM for International Rectifier Power MOSFET's)

Power MOSFET Characteristics

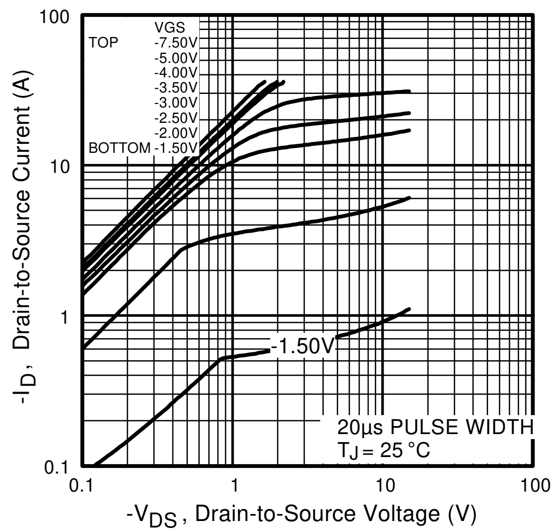


Fig 1. Typical Output Characteristics

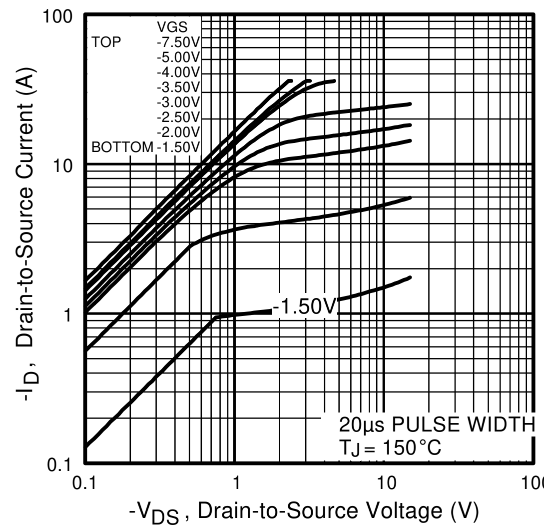


Fig 2. Typical Output Characteristics

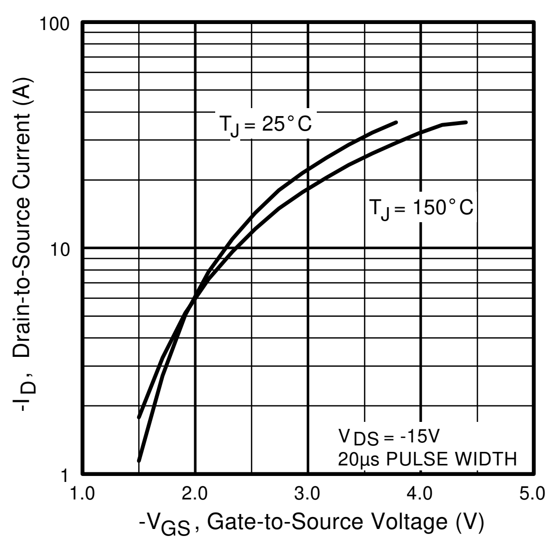


Fig 3. Typical Transfer Characteristics

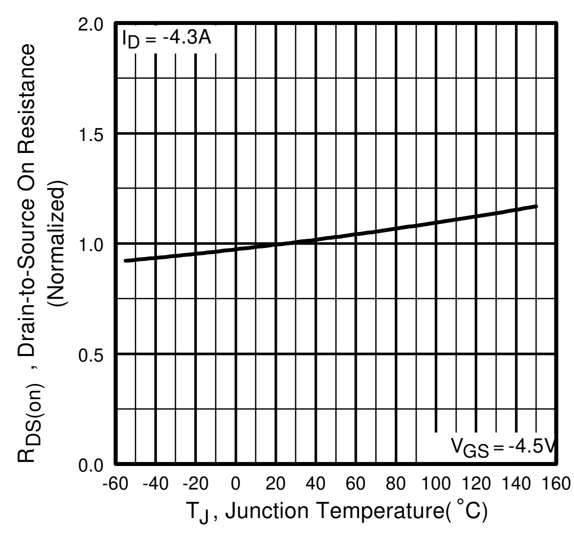


Fig 4. Normalized On-Resistance Vs. Temperature

Power MOSFET Characteristics

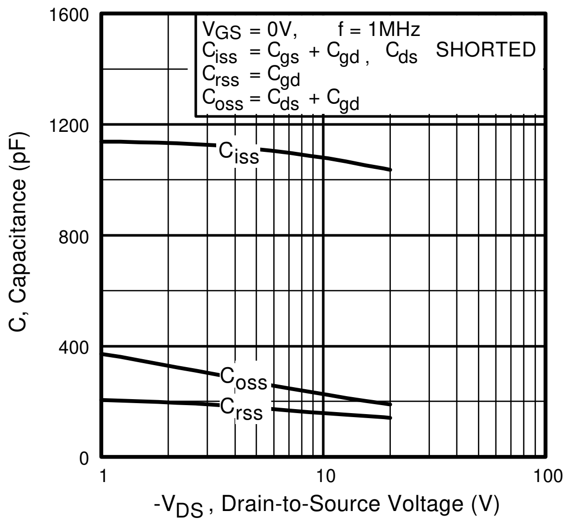


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

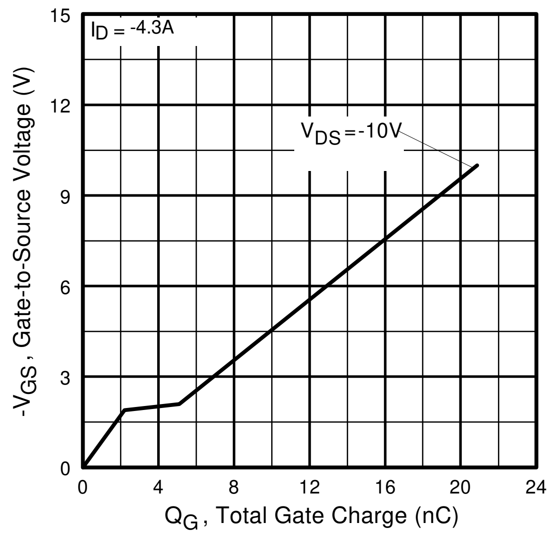


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

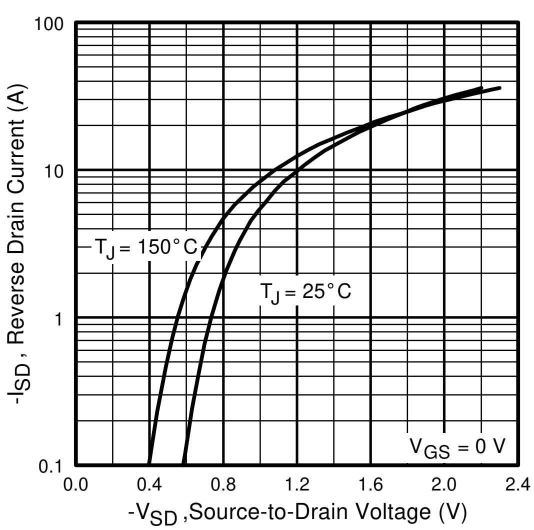


Fig 7. Typical Source-Drain Diode Forward Voltage

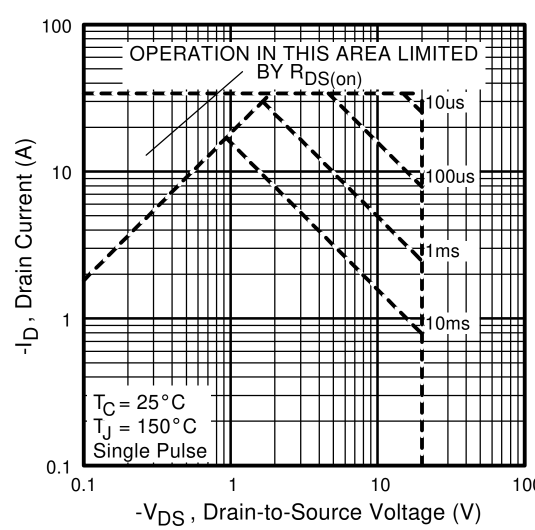


Fig 8. Maximum Safe Operating Area

Power MOSFET Characteristics

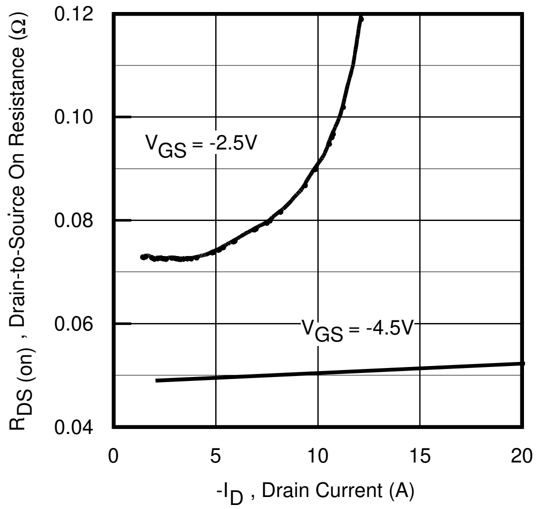


Fig 9. Typical On-Resistance Vs. Drain Current

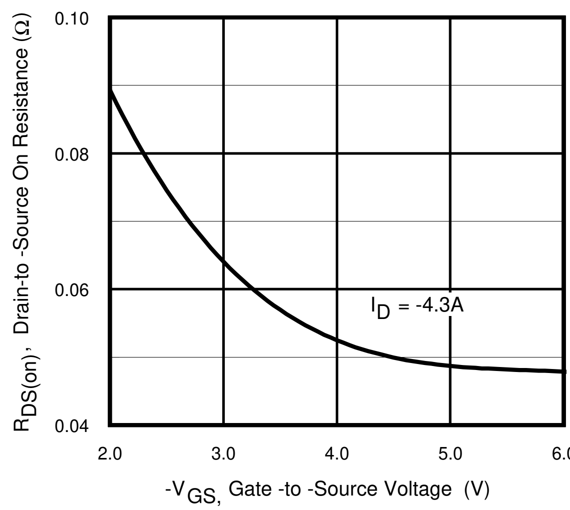


Fig 10. Typical On-Resistance Vs. Gate Voltage

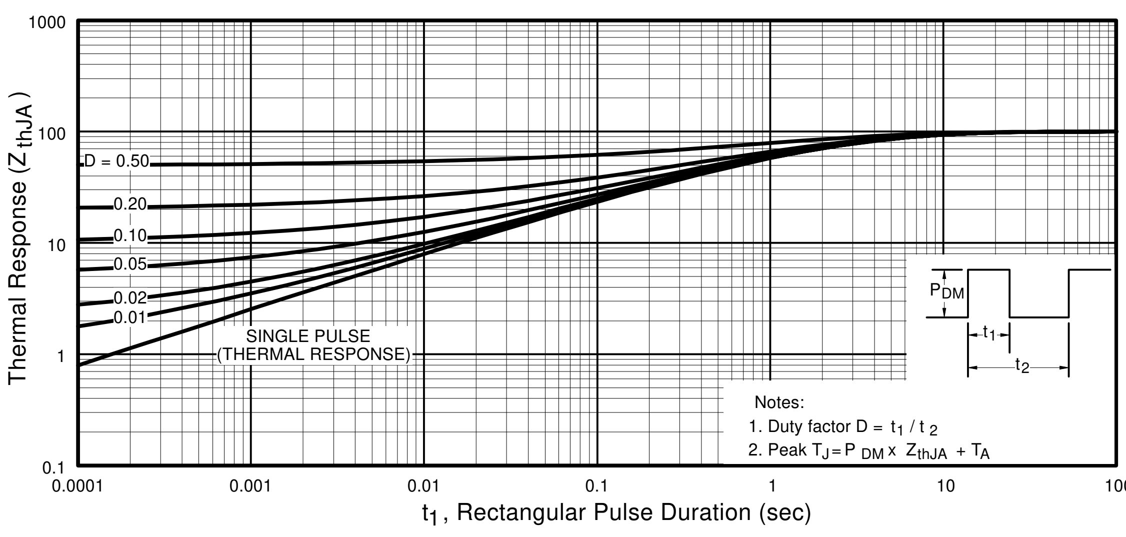


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

Schottky Diode Characteristics

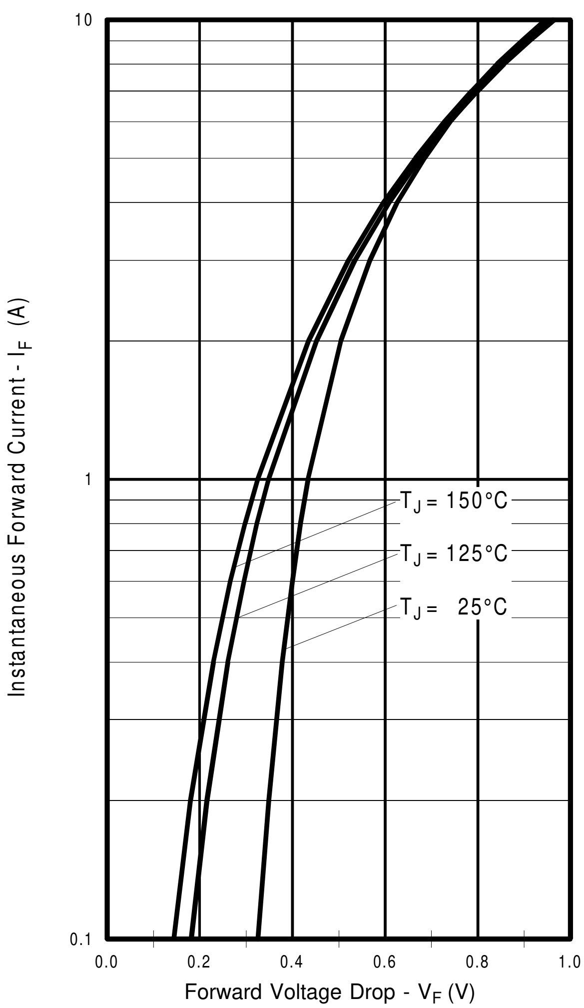


Fig. 12 -Typical Forward Voltage Drop Characteristics

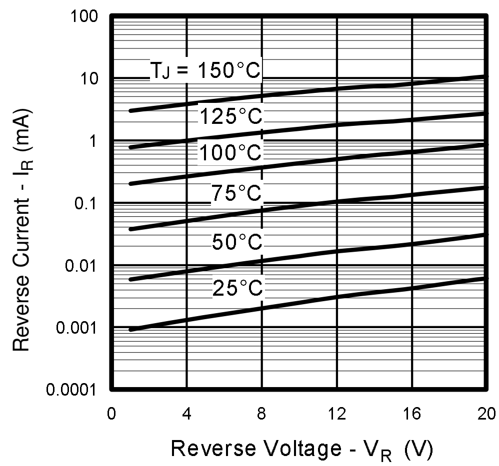


Fig. 13 - Typical Values of Reverse Current Vs. Reverse Voltage

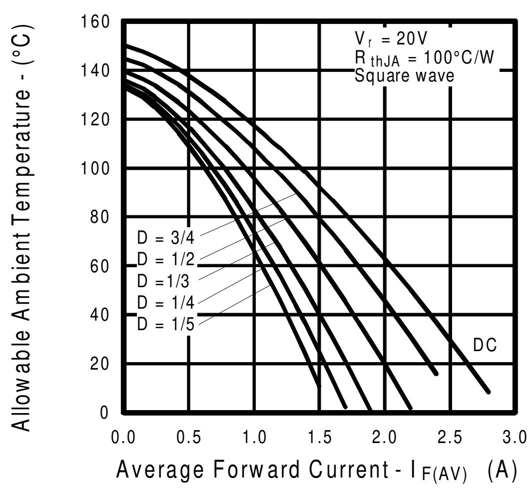
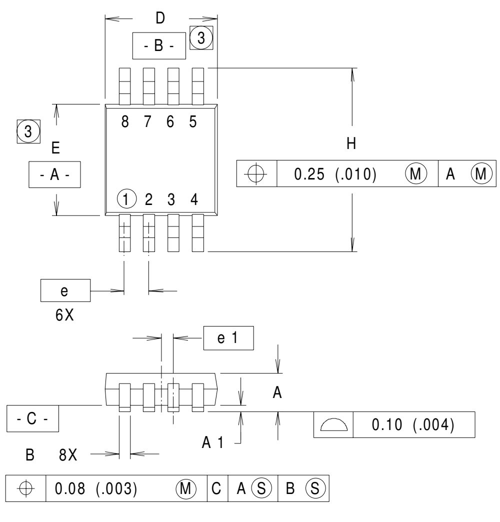


Fig.14 - Maximum Allowable Ambient Temp. Vs. Forward Current

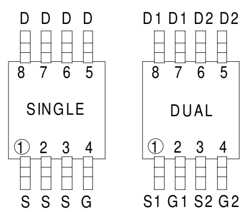
Package Outline

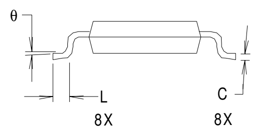
Micro8™ Outline

Dimensions are shown in millimeters (inches)



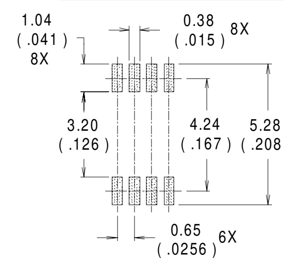
LEAD ASSIGNMENTS





DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.036	.044	0.91	1.11
A1	.004	.008	0.10	0.20
B	.010	.014	0.25	0.36
C	.005	.007	0.13	0.18
D	.116	.120	2.95	3.05
e	.0256 BASIC		0.65 BASIC	
e1	.0128 BASIC		0.33 BASIC	
E	.116	.120	2.95	3.05
H	.188	.198	4.78	5.03
L	.016	.026	0.41	0.66
θ	0°	6°	0°	6°

RECOMMENDED FOOTPRINT



NOTES:

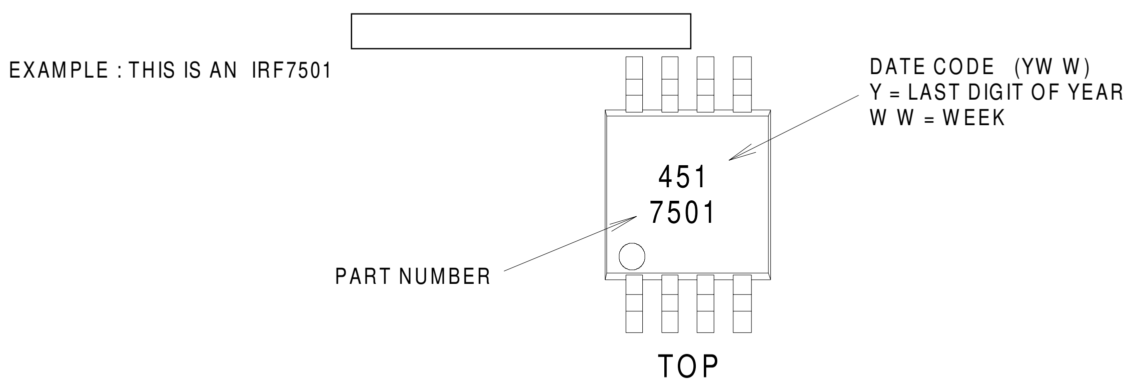
1 DIMENSIONING AND TOLERANCING PER ANSI Y14.5M-1982.

2 CONTROLLING DIMENSION : INCH.

3 DIMENSIONS DO NOT INCLUDE MOLD FLASH.

Part Marking Information

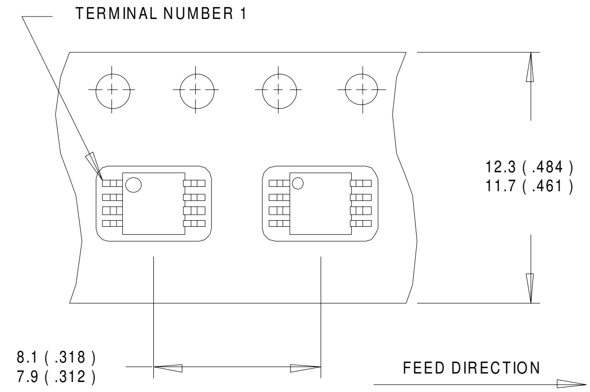
Micro8™



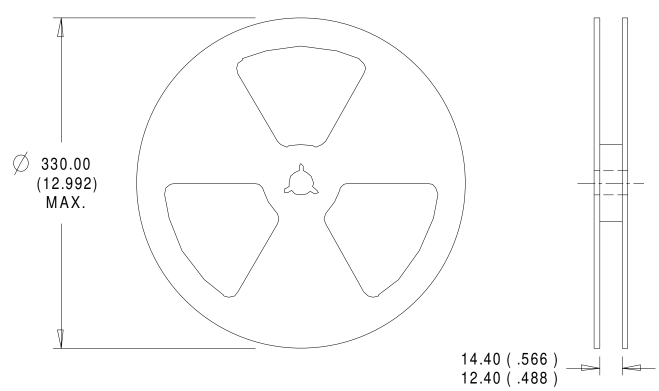
Tape & Reel Information

Micro8™

Dimensions are shown in millimeters (inches)



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



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

International
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