

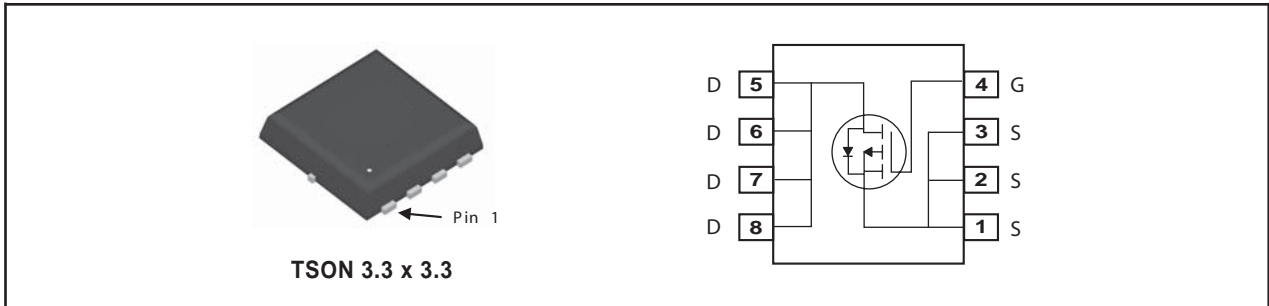


## P-Channel Enhancement Mode Field Effect Transistor

PRODUCT SUMMARY		
V <sub>DSS</sub>	I <sub>D</sub>	R <sub>DS(ON)</sub> (mΩ) Max
-20V	-8.5A	20 @ V <sub>GS</sub> =-4.5V
		21 @ V <sub>GS</sub> =-4.0V
		22 @ V <sub>GS</sub> =-3.7V
		25 @ V <sub>GS</sub> =-3.1V
		28 @ V <sub>GS</sub> =-2.5V

### FEATURES

- Super high dense cell design for low R<sub>DS(ON)</sub>.
- Rugged and reliable.
- Surface Mount Package.



### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C unless otherwise noted)

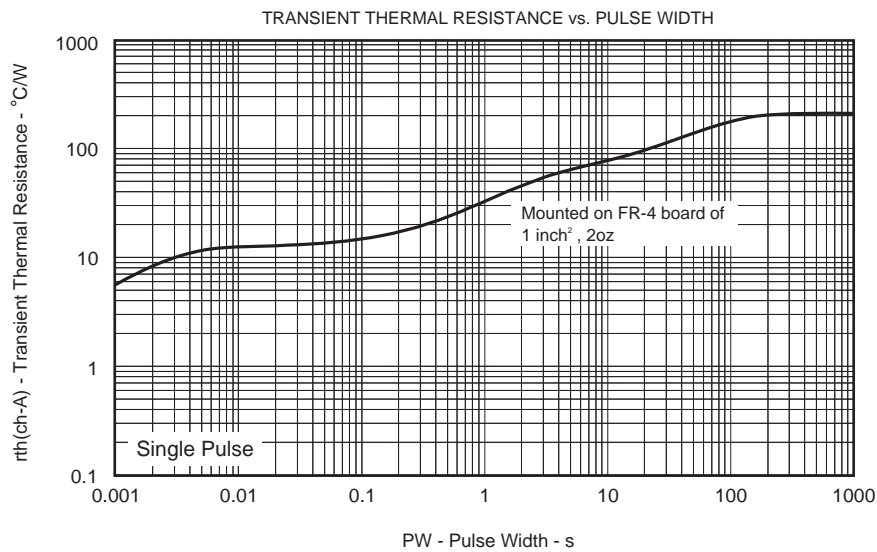
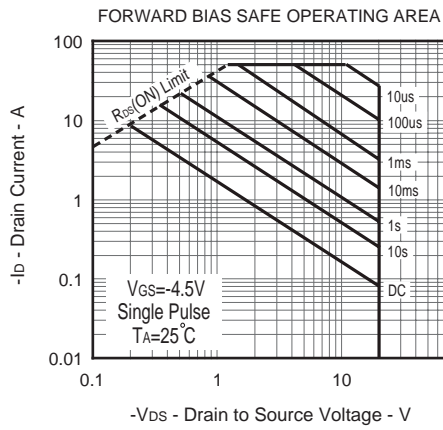
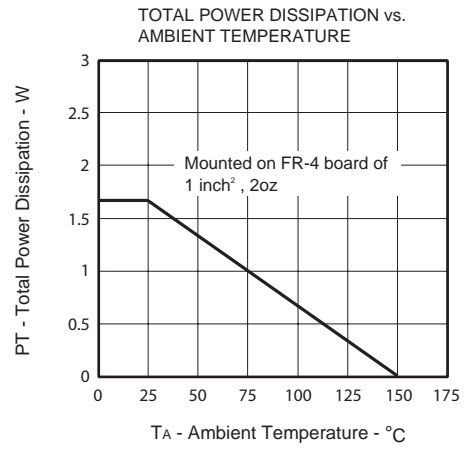
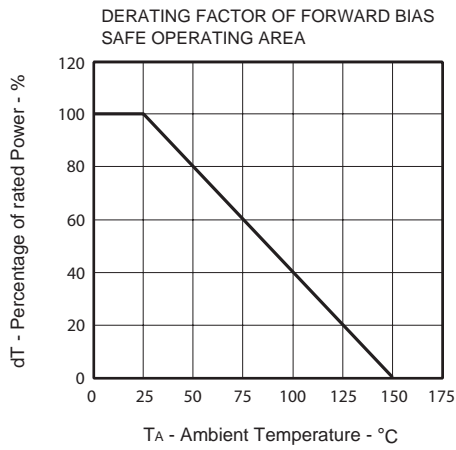
Symbol	Parameter	Limit	Units
V <sub>DS</sub>	Drain-Source Voltage	-20	V
V <sub>GS</sub>	Gate-Source Voltage	±12	V
I <sub>D</sub>	Drain Current-Continuous <sup>a d</sup>	T <sub>A</sub> =25°C	-8.5
		T <sub>A</sub> =70°C	-6.8
I <sub>DM</sub>	-Pulsed <sup>b</sup>	-49	A
P <sub>D</sub>	Maximum Power Dissipation <sup>a</sup>	T <sub>A</sub> =25°C	1.67
		T <sub>A</sub> =70°C	1.07
T <sub>J</sub> , T <sub>STG</sub>	Operating Junction and Storage Temperature Range	-55 to 150	°C

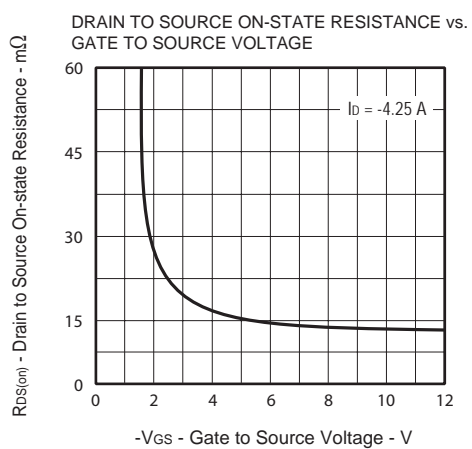
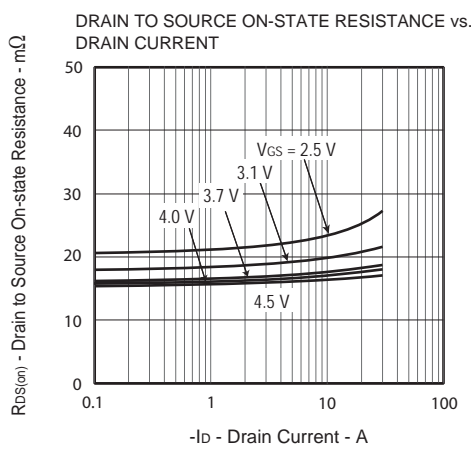
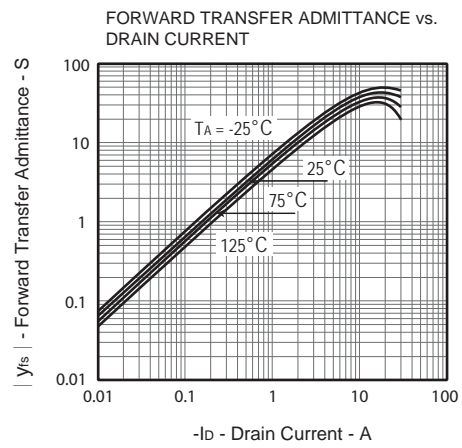
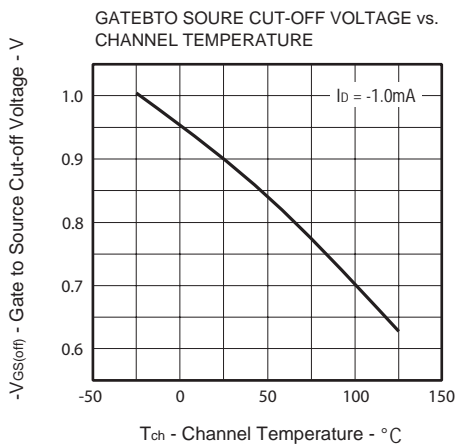
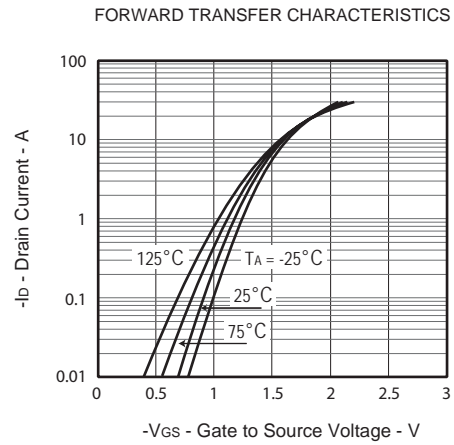
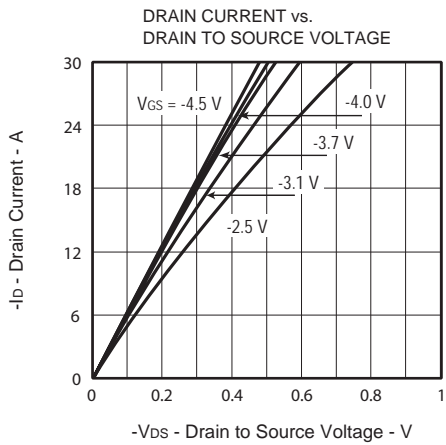
### THERMAL CHARACTERISTICS

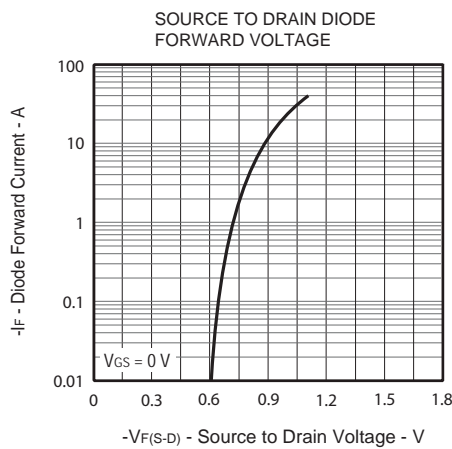
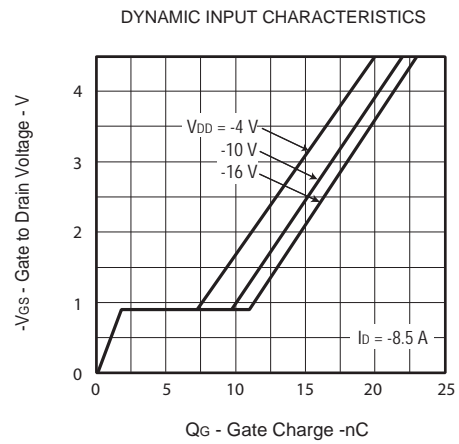
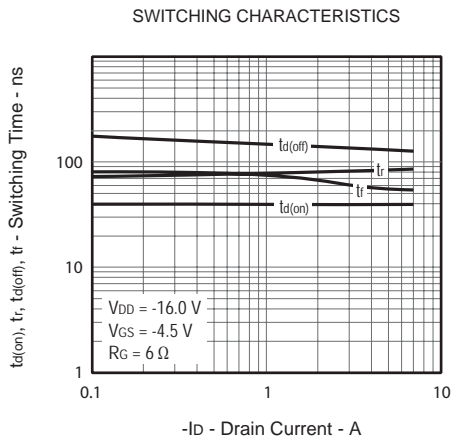
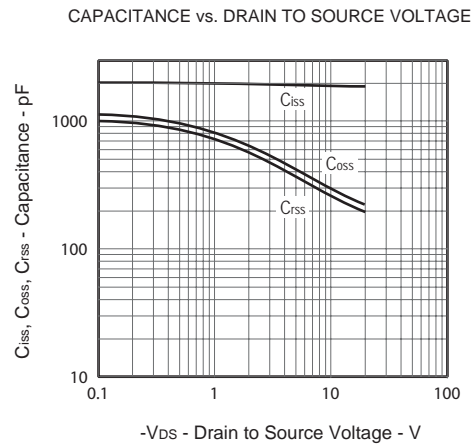
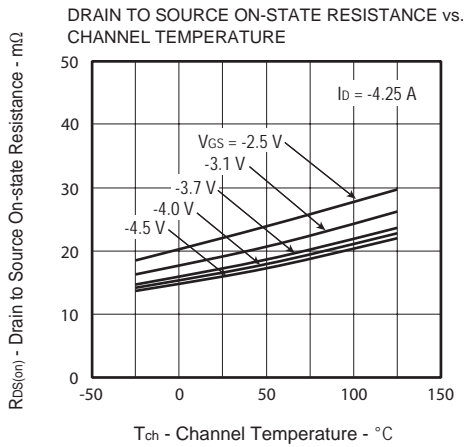
R <sub>θ JA</sub>	Thermal Resistance, Junction-to-Ambient	75	°C/W
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**ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise noted)**

Symbol	Parameter	Conditions	Min	Typ	Max	Units
<b>OFF CHARACTERISTICS</b>						
BV <sub>bss</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V , I <sub>D</sub> =-250uA	-20			V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =-16V , V <sub>GS</sub> =0V			-1	uA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> = ±12V , V <sub>DS</sub> =0V			±100	nA
<b>ON CHARACTERISTICS</b>						
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-1.0mA	-0.5	-0.9	-1.3	V
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =-4.5V , I <sub>D</sub> =-4.25A	12	16	20	m ohm
		V <sub>GS</sub> =-4.0V , I <sub>D</sub> =-4.25A	12.5	16.5	21	m ohm
		V <sub>GS</sub> =-3.7V , I <sub>D</sub> =-4.25A	13	17	22	m ohm
		V <sub>GS</sub> =-3.1V , I <sub>D</sub> =-4.25A	14	19	25	m ohm
		V <sub>GS</sub> =-2.5V , I <sub>D</sub> =-4.25A	18	22	28	m ohm
g <sub>FS</sub>	Forward Transconductance	V <sub>DS</sub> =-10V , I <sub>D</sub> =-4.25A		25		S
<b>DYNAMIC CHARACTERISTICS <sup>c</sup></b>						
C <sub>ISS</sub>	Input Capacitance	V <sub>DS</sub> =-10V, V <sub>GS</sub> =0V f=1.0MHz		1860		pF
C <sub>OSS</sub>	Output Capacitance			300		pF
C <sub>RSS</sub>	Reverse Transfer Capacitance			258		pF
<b>SWITCHING CHARACTERISTICS <sup>c</sup></b>						
t <sub>D(ON)</sub>	Turn-On Delay Time	V <sub>DD</sub> =-16V I <sub>D</sub> =-4.25A		39		ns
t <sub>r</sub>	Rise Time			81		ns
t <sub>D(OFF)</sub>	Turn-Off Delay Time	V <sub>GS</sub> =-4.5V R <sub>GEN</sub> = 6 ohm		126		ns
t <sub>f</sub>	Fall Time			58		ns
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =-16V, I <sub>D</sub> =-8.5A, V <sub>GS</sub> =-4.5V		23		nC
Q <sub>gs</sub>	Gate-Source Charge			1.8		nC
Q <sub>gd</sub>	Gate-Drain Charge			9.2		nC
<b>DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS</b>						
V <sub>SD</sub>	Diode Forward Voltage	V <sub>GS</sub> =0V, I <sub>S</sub> =-8.5A		-0.85	-1.2	V
<b>Notes</b>						
a.Surface Mounted on FR4 Board, t ≤ 10sec.						
b.Pulse Test:Pulse Width < 300us, Duty Cycle ≤ 2%.						
c.Guaranteed by design, not subject to production testing.						
d.Drain current limited by maximum junction temperature.						

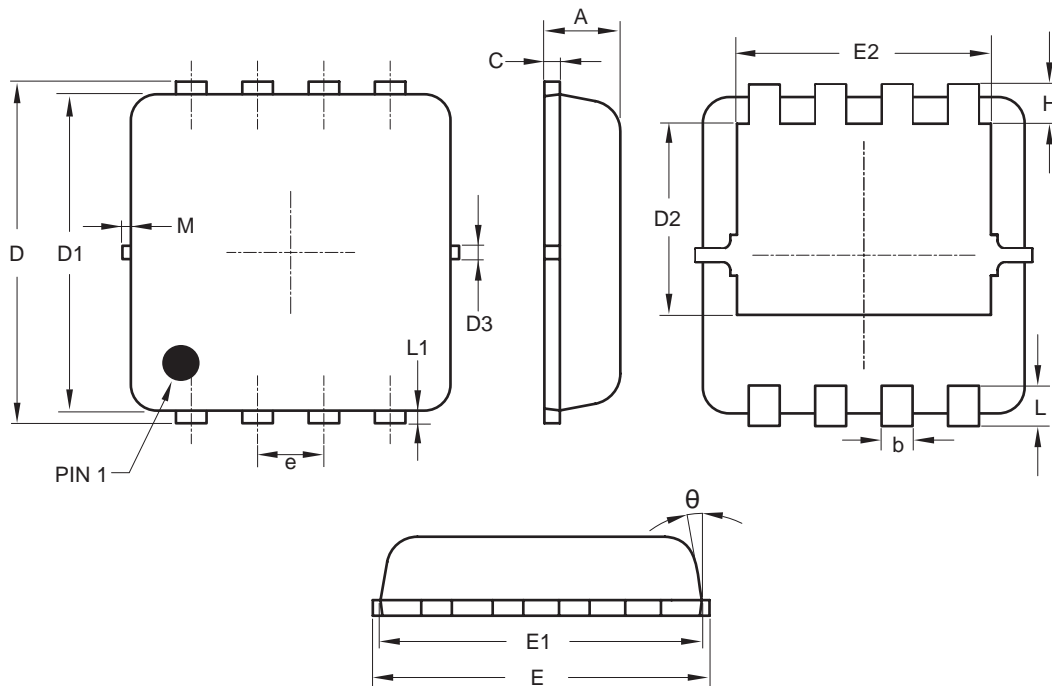




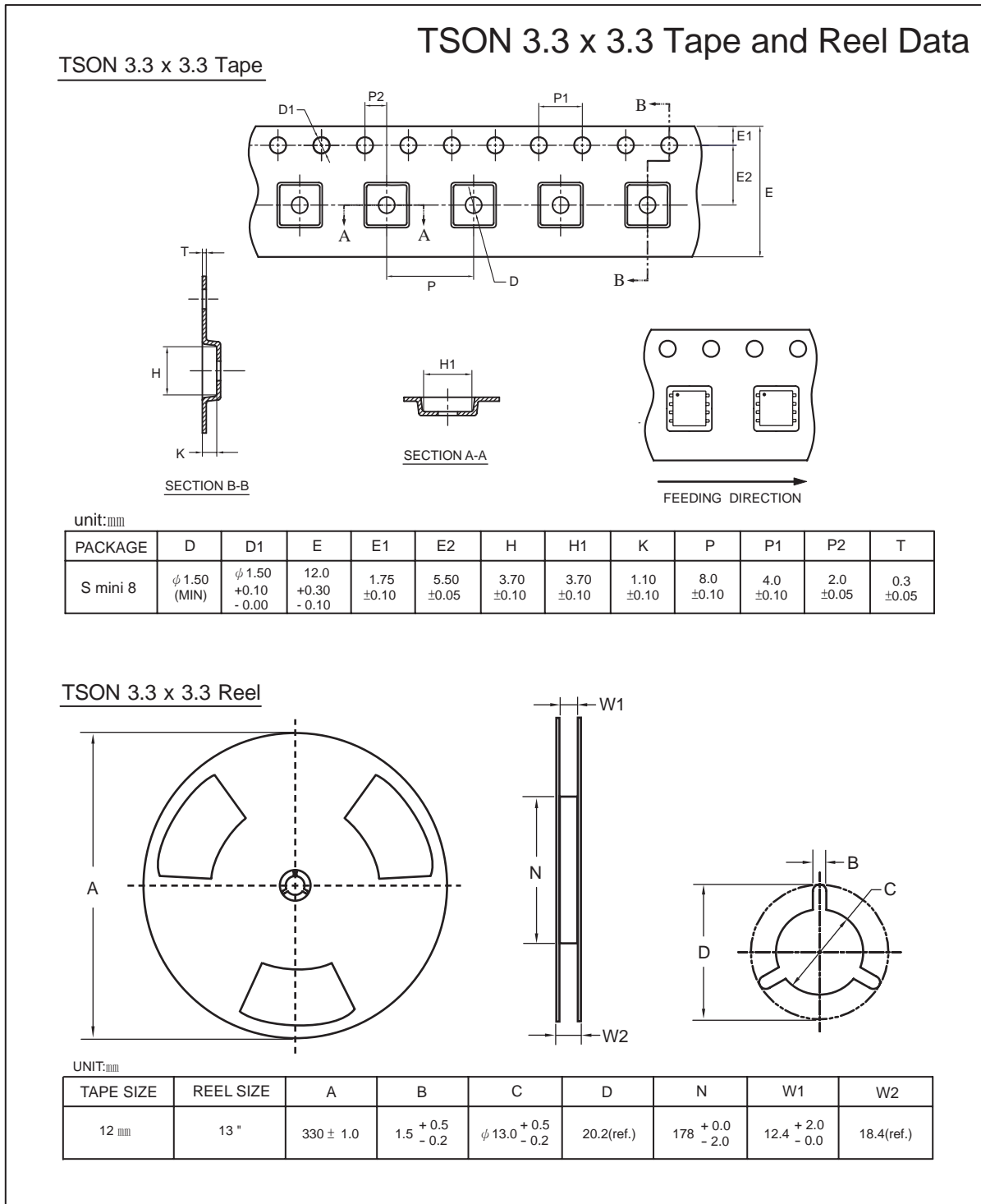


## PACKAGE OUTLINE DIMENSIONS

### TSON 3.3 x 3.3



SYMBOLS	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.70	0.75	0.80
b	0.25	0.30	0.35
C	0.10	0.15	0.25
D	3.25	3.35	3.45
D1	3.00	3.10	3.20
D2	1.78	1.88	1.98
D3	—	0.13	—
E	3.20	3.30	3.40
E1	3.00	3.15	3.20
E2	2.39	2.49	2.59
e	0.65 BSC		
H	0.30	0.39	0.50
L	0.30	0.40	0.50
L1	—	0.13	—
M	—	—	0.15
theta	—	10°	12°



## TOP MARKING DEFINITION

