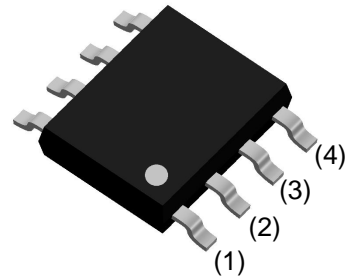
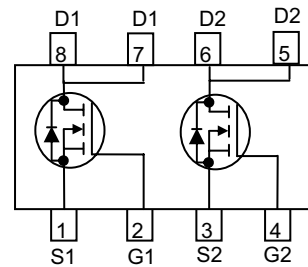


WNMD4800
Dual N-Channel, 30V, 6.9A, Power MOSFET
[Http://www.willsemi.com](http://www.willsemi.com)

V_{DS} (V)	Typical $R_{DS(on)}$ (m Ω)
30	17 @ $V_{GS}=10V$


SOP-8L

Descriptions

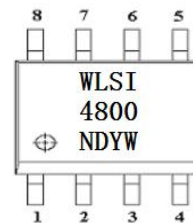
The WNMD4800 is N-Channel enhancement MOS Field Effect Transistor. Uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit. Standard Product WNMD4800 is Pb-free and Halogen-free.

Features

- Trench Technology
- Supper high density cell design
- Excellent ON resistance
- Extremely Low Threshold Voltage
- Small package SOP-8L

Applications

- DC/DC converters
- Power supply converters circuit
- Load/Power Switching for portable device

Pin configuration (Top view)


WLSI = Company
 4800 = Device Code
 ND = Special Code
 Y = Year
 W = Week(A~z)

Marking
Order information

Device	Package	Shipping
WNMD4800-8/TR	SOP-8L	4000/Tape&Reel

Absolute Maximum ratings

Parameter	Symbol	10 s	Steady State	Unit	
Drain-Source Voltage	V_{DS}	30		V	
Gate-Source Voltage	V_{GS}	± 20			
Continuous Drain Current ^{a d}	I_D	$T_A=25^\circ\text{C}$	6.9	5.4	A
		$T_A=70^\circ\text{C}$	5.6	4.3	
Maximum Power Dissipation ^{a d}	P_D	$T_A=25^\circ\text{C}$	2.0	1.2	W
		$T_A=70^\circ\text{C}$	1.3	0.8	
Continuous Drain Current ^{b d}	I_D	$T_A=25^\circ\text{C}$	5.8	4.8	A
		$T_A=70^\circ\text{C}$	4.7	3.8	
Maximum Power Dissipation ^{b d}	P_D	$T_A=25^\circ\text{C}$	1.4	0.9	W
		$T_A=70^\circ\text{C}$	0.9	0.6	
Pulsed Drain Current ^c	I_{DM}	28		A	
Operating Junction Temperature	T_J	-55 to 150		$^\circ\text{C}$	
Lead Temperature	T_L	260		$^\circ\text{C}$	
Storage Temperature Range	T_{stg}	-55 to 150		$^\circ\text{C}$	

Thermal resistance ratings

Parameter	Symbol	Typical	Maximum	Unit	
Junction-to-Ambient Thermal Resistance ^a	$R_{\theta JA}$	$t \leq 10 \text{ s}$	50	64	$^\circ\text{C/W}$
		Steady State	76	106	
Junction-to-Ambient Thermal Resistance ^b	$R_{\theta JA}$	$t \leq 10 \text{ s}$	69	91	
		Steady State	105	135	
Junction-to-Case Thermal Resistance	$R_{\theta JC}$	35	45		

a Surface mounted on FR4 Board using 1 square inch pad size, 1oz copper

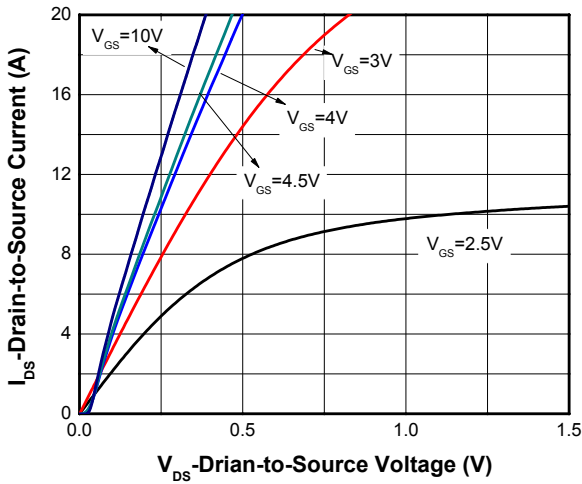
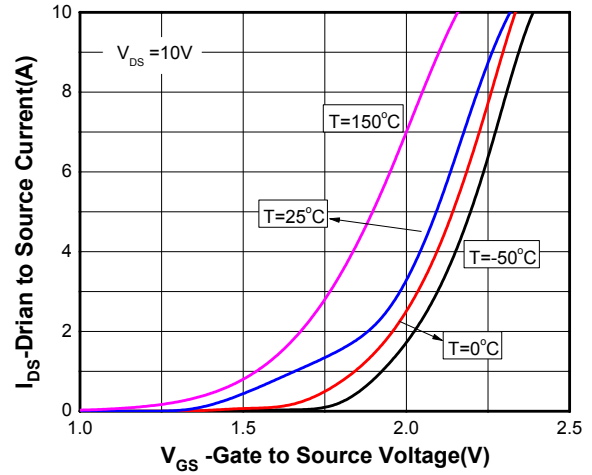
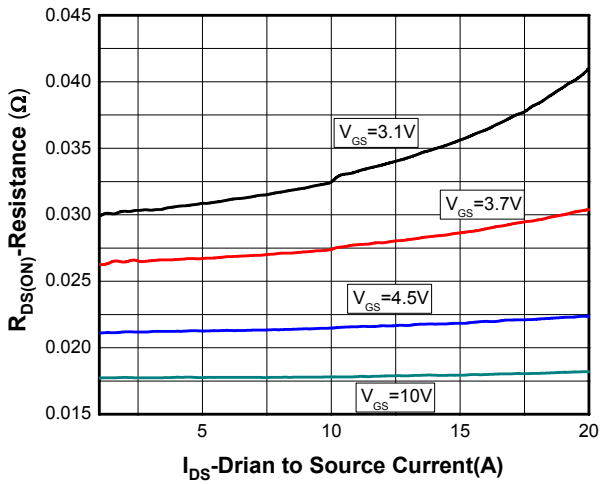
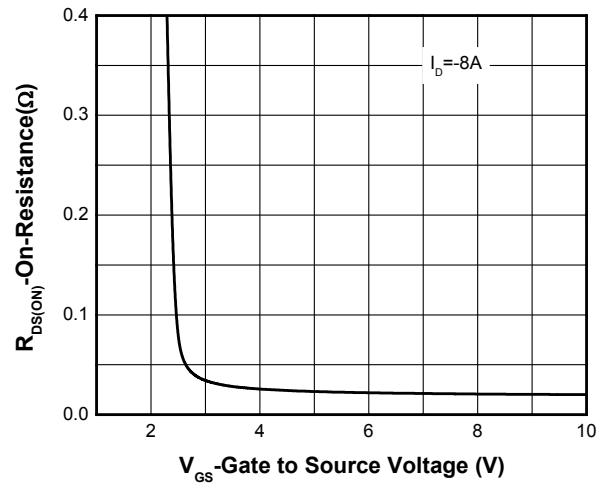
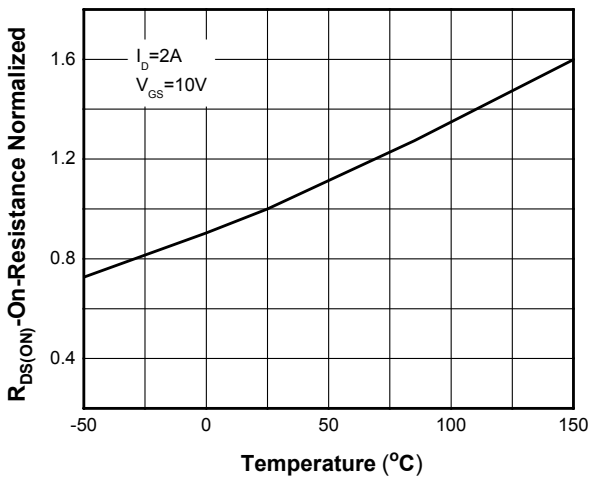
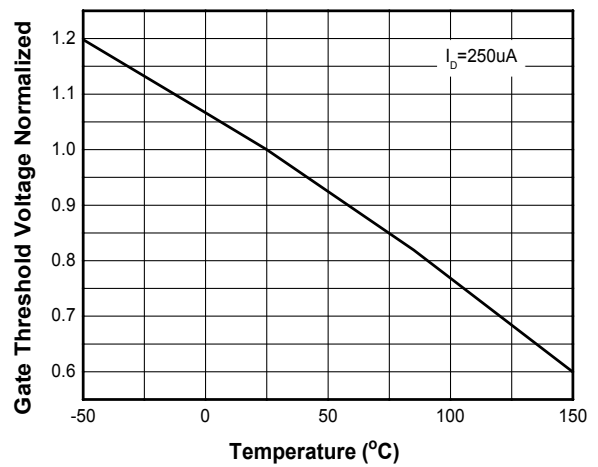
b Surface mounted on FR4 board using minimum pad size, 1oz copper

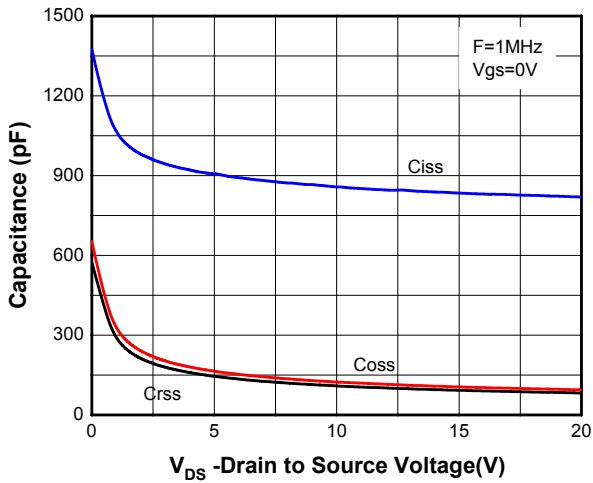
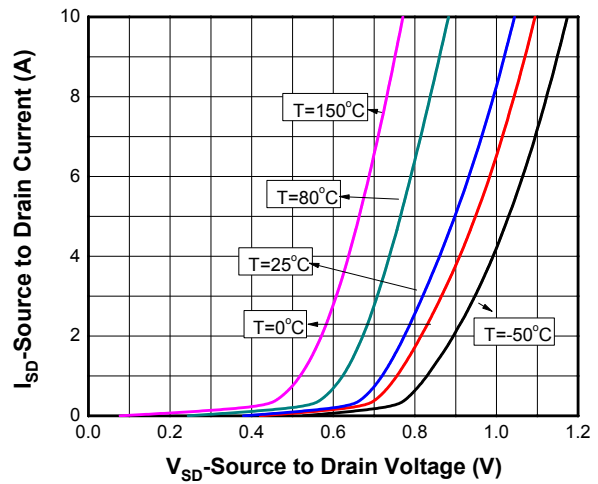
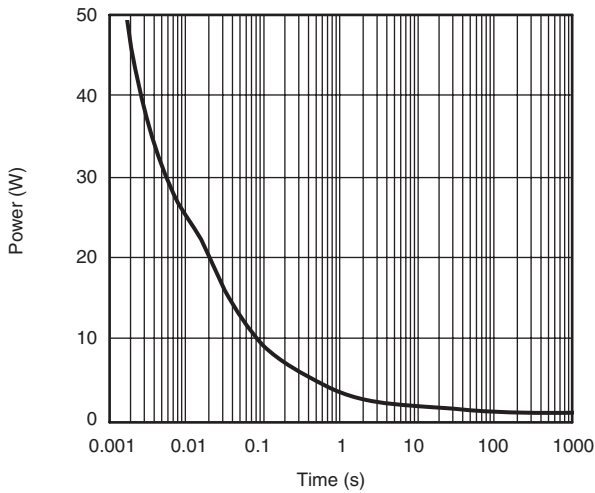
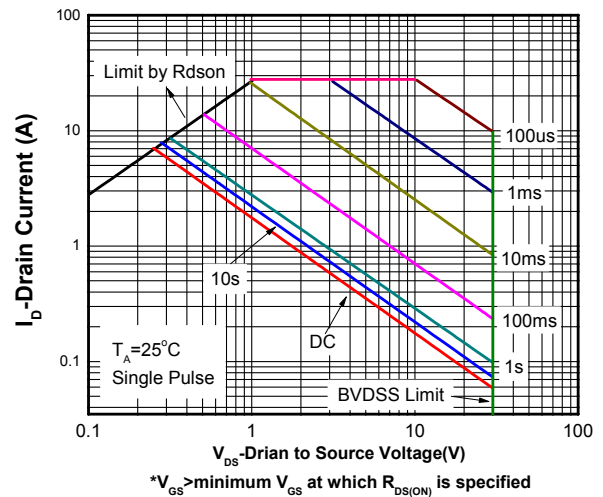
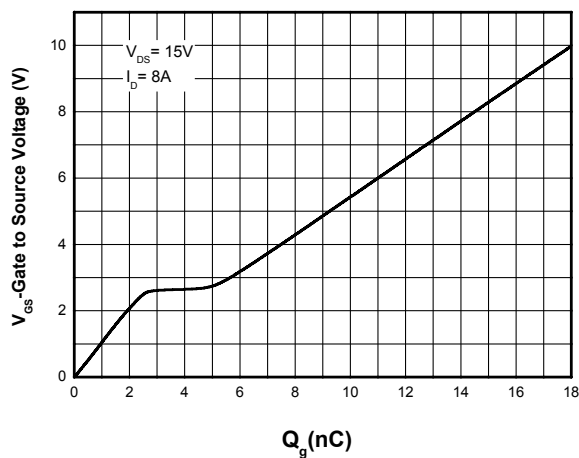
c Repetitive rating, pulse width limited by junction temperature, $t_p=10\mu\text{s}$, Duty Cycle=1%

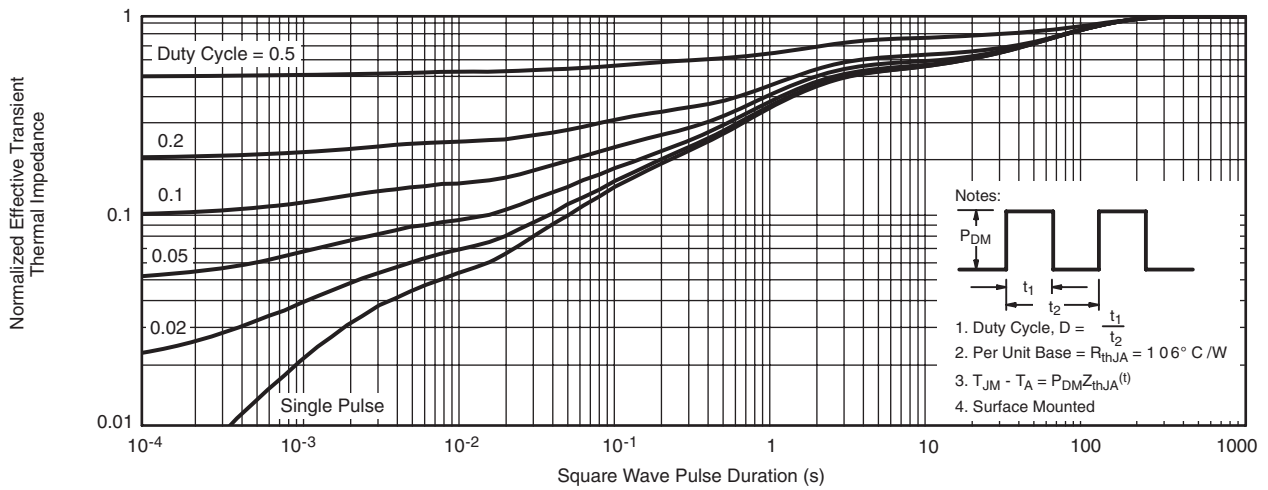
d Repetitive rating, pulse width limited by junction temperature $T_J=150^\circ\text{C}$.

Electronics Characteristics (Ta=25°C, unless otherwise noted)

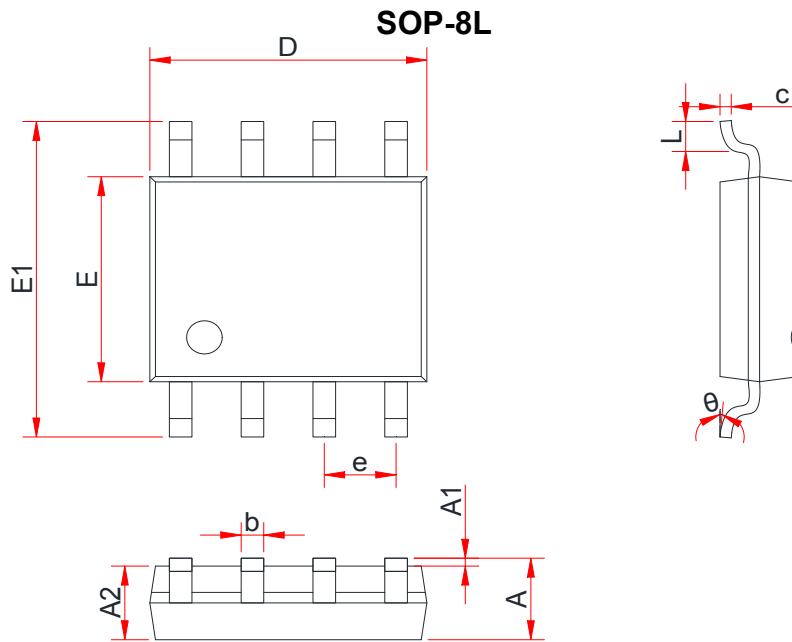
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0\text{ V}, I_D = 250\mu\text{A}$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24\text{ V}, V_{GS} = 0\text{ V}$			1	μA
Gate-to-source Leakage Current	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			± 100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_D = 250\mu\text{A}$	0.5	1.0	1.5	V
Drain-to-source On-resistance	$R_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 7\text{ A}$		17	27	m Ω
		$V_{GS} = 4.5\text{ V}, I_D = 7\text{ A}$		21	33	
		$V_{GS} = 3.7\text{ V}, I_D = 4\text{ A}$		23	42	
		$V_{GS} = 3.1\text{ V}, I_D = 4\text{ A}$		28	48	
Forward Transconductance	g_{FS}	$V_{DS} = 10\text{ V}, I_D = 7.0\text{ A}$		6	16	S
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C_{ISS}	$V_{GS} = 0\text{ V}, f = 1\text{ MHz}, V_{DS} = 15\text{ V}$		834		pF
Output Capacitance	C_{OSS}			105		
Reverse Transfer Capacitance	C_{RSS}			93		
Total Gate Charge	$Q_{G(TOT)}$	$V_{GS} = 10\text{ V}, V_{DS} = 15\text{ V}, I_D = 8\text{ A}$		19.9		nC
Threshold Gate Charge	$Q_{G(TH)}$			0.9		
Gate-to-Source Charge	Q_{GS}			2		
Gate-to-Drain Charge	Q_{GD}			3.9		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_d(ON)$	$V_{GS} = 10\text{ V}, V_{DS} = 15\text{ V}, R_L = 3.75\Omega, R_G = 10\Omega$		10.6		ns
Rise Time	t_r			5.4		
Turn-Off Delay Time	$t_d(OFF)$			45.6		
Fall Time	t_f			7.6		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V_{SD}	$V_{GS} = 0\text{ V}, I_S = 2.5\text{ A}$		0.85	1.5	V

Typical Characteristics (Ta=25°C, unless otherwise noted)

Output characteristics

Transfer characteristics

On-Resistance vs. Drain current

On-Resistance vs. Gate-to-source voltage

On-Resistance vs. Junction temperature

Threshold voltage vs. Temperature

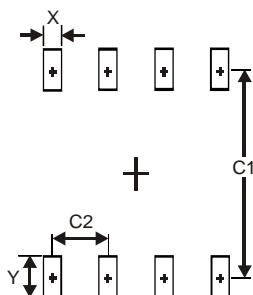

Capacitance

Body diode forward voltage

Single pulse power

Safe operating power

Gate Charge Characteristics



Transient thermal response (Junction-to-Ambient)

Package outline dimensions


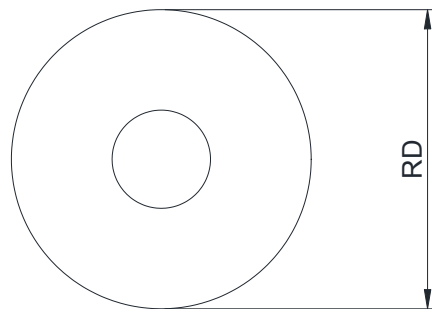
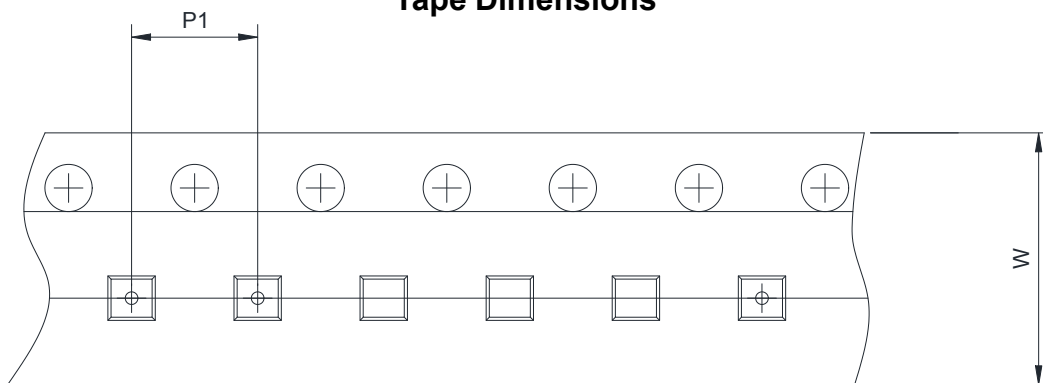
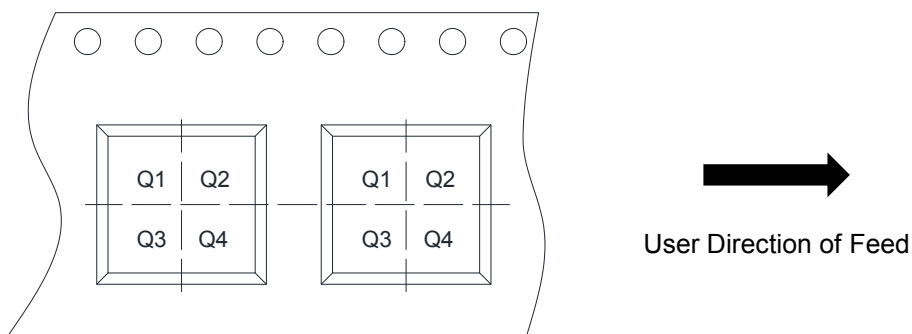
Symbol	Dimensions In Millimeters (mm)		
	Min.	Typ.	Max.
A	1.35	1.55	1.75
A1	0.05	0.15	0.25
A2	1.25	1.40	1.65
b	0.33	-	0.51
c	0.15	-	0.26
D	4.70	4.90	5.10
E	3.70	3.90	4.10
E1	5.80	6.00	6.20
e	1.27BSC		
L	0.40	-	1.27
θ	0°	-	8°

Recommend PCB Layout (Unit: mm)


Dimensions	Value (in mm)
X	0.60
Y	1.55
C1	5.4
C2	1.27

Notes:

This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

TAPE AND REEL INFORMATION
Reel Dimensions

Tape Dimensions

Quadrant Assignments For PIN1 Orientation In Tape


RD	Reel Dimension	<input type="checkbox"/> 7inch	<input checked="" type="checkbox"/> 13inch		
W	Overall width of the carrier tape	<input type="checkbox"/> 8mm	<input checked="" type="checkbox"/> 12mm		
P1	Pitch between successive cavity centers	<input type="checkbox"/> 2mm	<input type="checkbox"/> 4mm	<input checked="" type="checkbox"/> 8mm	
Pin1	Pin1 Quadrant	<input checked="" type="checkbox"/> Q1	<input type="checkbox"/> Q2	<input type="checkbox"/> Q3	<input type="checkbox"/> Q4