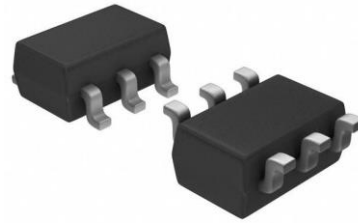
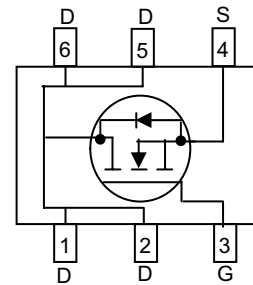


WNM01N11
Single N-Channel, 110V, 1.8A, Power MOSFET
[Http://www.sh-willsemi.com](http://www.sh-willsemi.com)

V _{DS} (V)	Typical R _{ds(on)} (Ω)
110	0.230@ V _{GS} =10V
	0.250@ V _{GS} =4.5V


SOT-23-6L

Pin configuration (Top view)
Descriptions

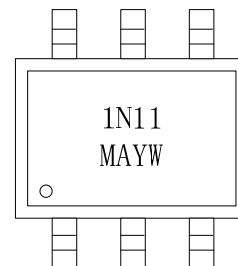
The WNM01N11 is N-Channel enhancement MOS Field Effect Transistor. Uses advanced trench technology and design to provide excellent R_{DS (ON)} with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit. Standard Product WNM01N11 is Pb-free and Halogen-free.

Features

- Trench Technology
- Supper high density cell design
- Excellent ON resistance for higher DC current
- Small package SOT-23-6L

Applications

- Driver for Relay, Solenoid, Motor, LED etc.
- DC-DC converter circuit
- Power Switch
- Load Switch
- Charging


1N11 = Device Code
MA= Special Code
YW= Year&Week
Marking
Order information

Device	Package	Shipping
WNM01N11-6/TR	SOT-23-6L	3000/Reel&Tape

Absolute Maximum ratings

Parameter		Symbol	1S	10 S	Steady State	Unit
Drain-Source Voltage		V_{DS}	110			V
Gate-Source Voltage		V_{GS}	± 20			
Continuous Drain Current ^{a d}	$T_A=25^\circ\text{C}$	I_D	2.13	1.80	1.50	A
	$T_A=70^\circ\text{C}$		1.70	1.44	1.20	
Maximum Power Dissipation ^{a d}	$T_A=25^\circ\text{C}$	P_D	2.50	1.78	1.25	W
	$T_A=70^\circ\text{C}$		1.60	1.14	0.80	
Continuous Drain Current ^{b d}	$T_A=25^\circ\text{C}$	I_D	1.80	1.59	1.40	A
	$T_A=70^\circ\text{C}$		1.44	1.27	1.12	
Maximum Power Dissipation ^{b d}	$T_A=25^\circ\text{C}$	P_D	1.78	1.39	1.08	W
	$T_A=70^\circ\text{C}$		1.14	0.88	0.69	
Pulsed Drain Current ^c		I_{DM}	7			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	$t \leq 1 \text{ s}$	$R_{\theta JA}$	36	50	$^\circ\text{C/W}$
	$t \leq 10 \text{ s}$		50	70	
	Steady State		75	100	
Junction-to-Ambient Thermal Resistance ^b	$t \leq 1 \text{ s}$	$R_{\theta JA}$	50	70	
	$t \leq 10 \text{ s}$		75	90	
	Steady State		95	115	
Junction-to-Case Thermal Resistance		Steady State	$R_{\theta JC}$	55	70

a Surface mounted on FR-4 Board using 1 square inch pad size, 1oz copper

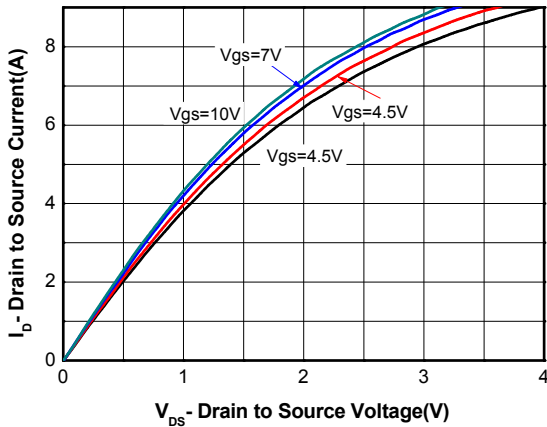
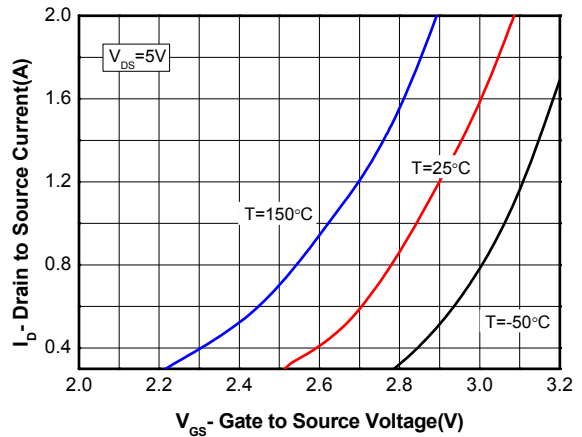
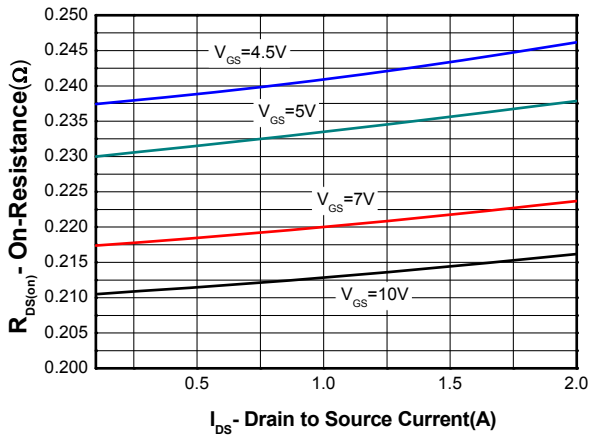
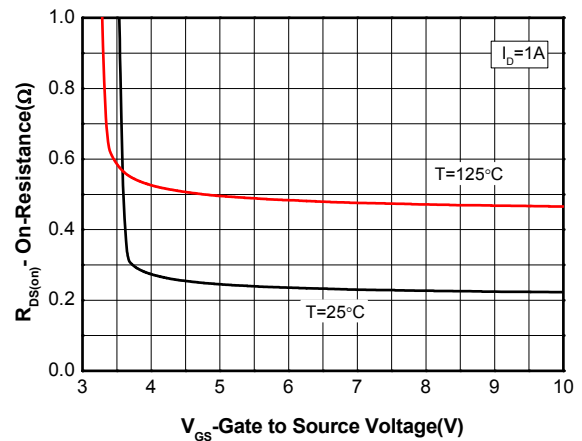
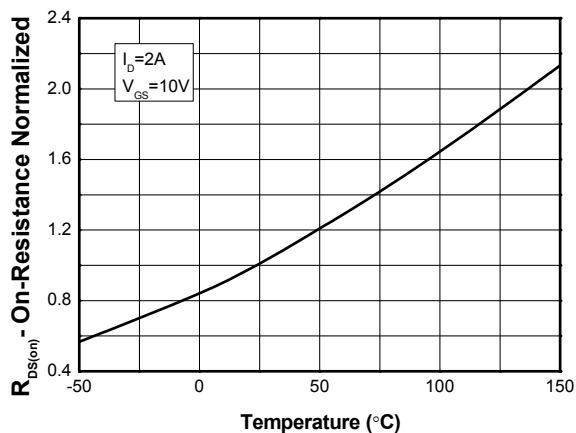
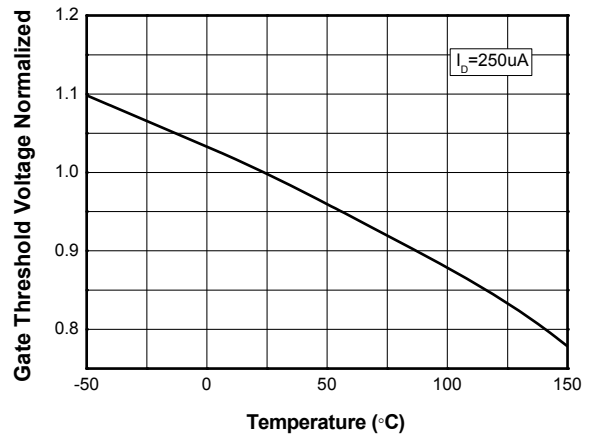
b Surface mounted on FR-4 board using minimum pad size, 1oz copper

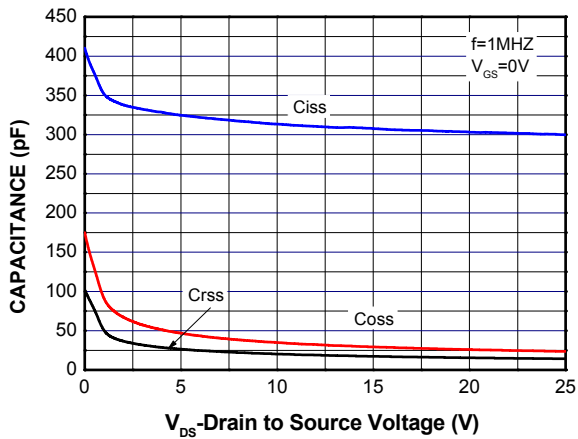
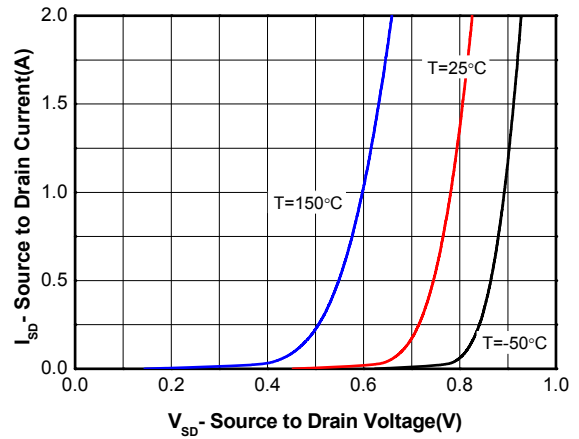
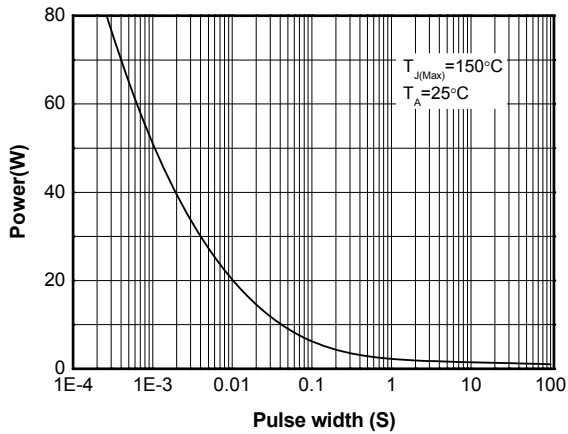
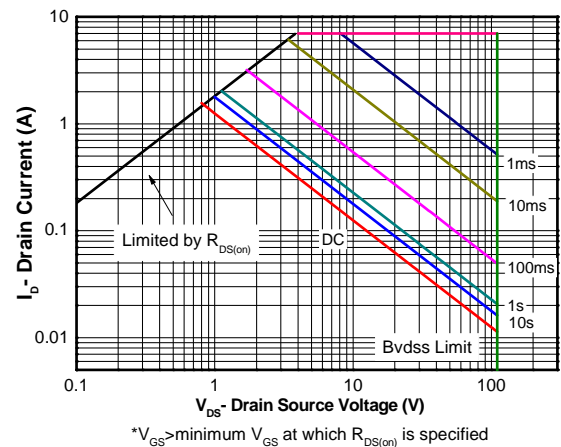
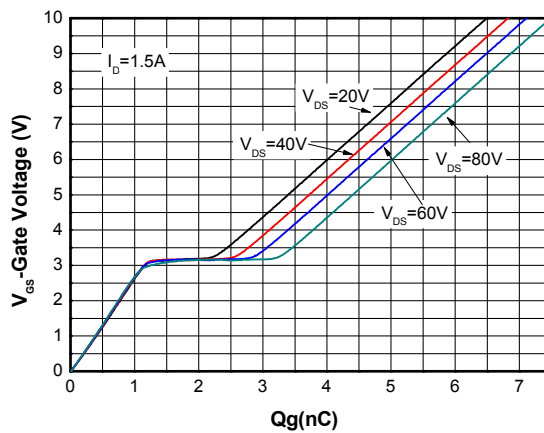
c Pulse width < 380 μs , Duty Cycle < 2%

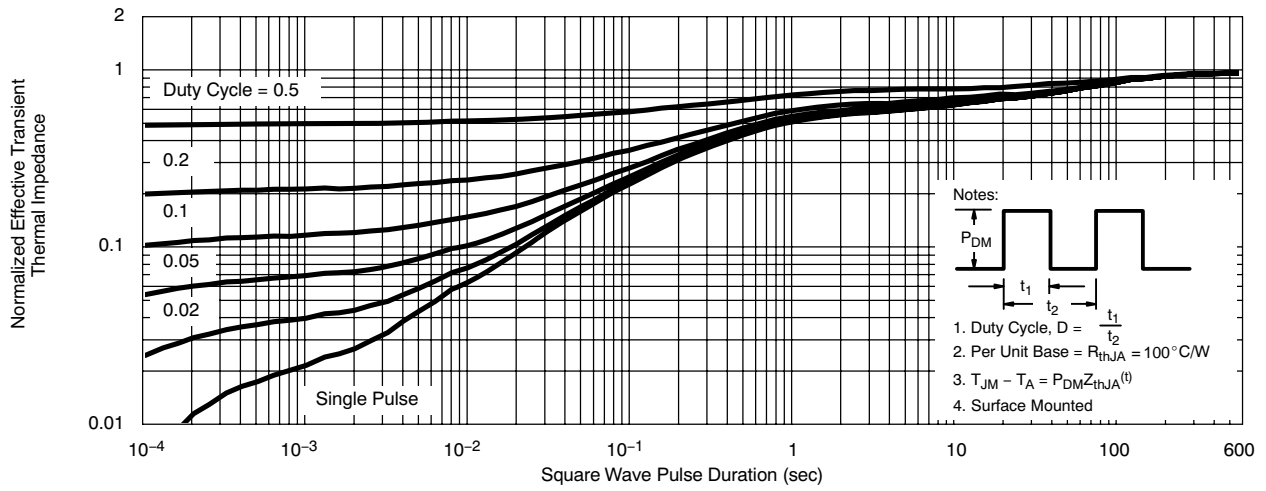
d Maximum junction temperature $T_J=150^\circ\text{C}$.

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

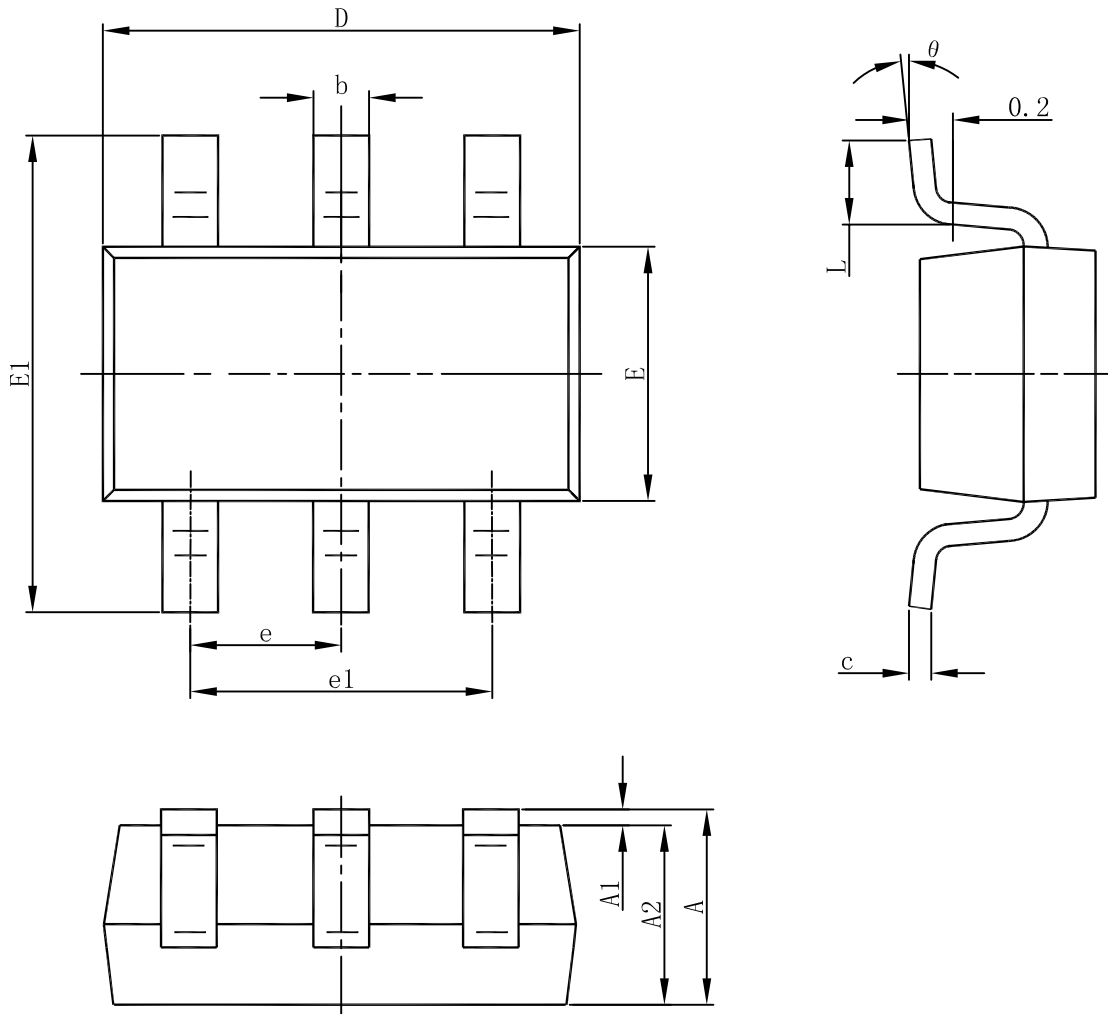
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	110			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 90V, V_{GS} = 0V$			1	μA
Gate-to-source Leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_D = 250\mu A$	1	1.9	2.5	V
Drain-to-source On-resistance ^{b, c}	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 1.4A$		230	310	m Ω
		$V_{GS} = 4.5V, I_D = 1.3A$		250	350	
Forward Trans conductance	g_{fs}	$V_{DS} = 10V, I_D = 3A$		1.1		S
CAPACITANCES, CHARGES						
Input Capacitance	C_{ISS}	$V_{GS} = 0V,$ $f = 1.0\text{ MHz},$ $V_{DS} = 25V$		300		pF
Output Capacitance	C_{OSS}			25.6		
Reverse Transfer Capacitance	C_{RSS}			15.6		
Total Gate Charge	$Q_{G(TOT)}$	$V_{GS} = 10V,$ $V_{DD} = 80V,$ $I_D = 1.5A$		7.5		nC
Threshold Gate Charge	$Q_{G(TH)}$			0.7		
Gate-to-Source Charge	Q_{GS}			1.1		
Gate-to-Drain Charge	Q_{GD}			2.1		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_d(ON)$	$V_{GS} = 10V,$ $V_{DD} = 50V,$ $R_L = 50\Omega,$ $R_G = 3.3\Omega$		11.8		ns
Rise Time	t_r			13.2		
Turn-Off Delay Time	$t_d(OFF)$			32.8		
Fall Time	t_f			4.8		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V_{SD}	$V_{GS} = 0V, I_S = 1A$		0.8	1.2	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. Junction temperature

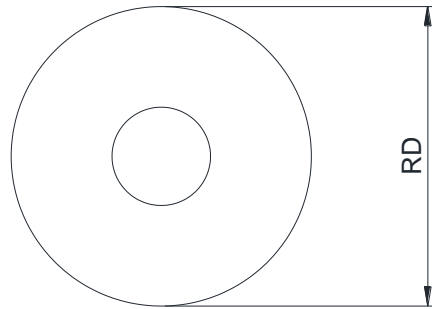
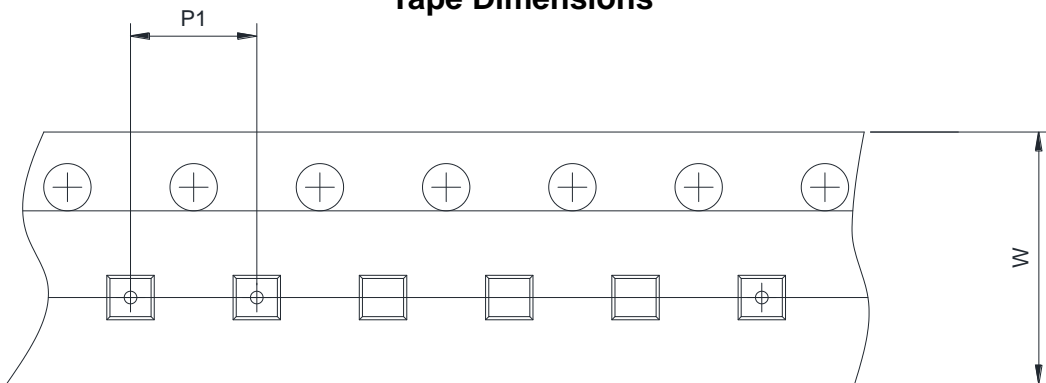
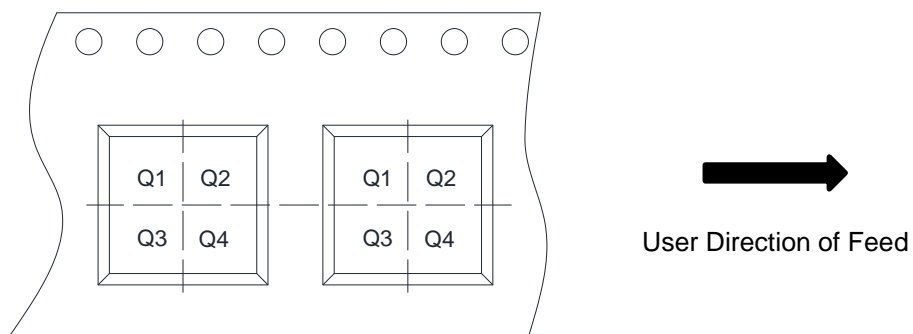

Capacitance

Body diode forward voltage

Single pulse power

Safe operating power

Gate charge Characteristics



Transient thermal response (Junction-to-Ambient)

Package outline dimensions
SOT-23-6L


Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	1.05	-	1.45
A1	0	-	0.15
A2	1.00	1.15	1.30
b	0.30	0.40	0.50
c	0.10	-	0.21
D	2.72	2.92	3.12
E1	2.60	2.80	3.00
E	1.40	1.60	1.80
e	0.85	0.95	1.05
e1	1.80	1.90	2.00
L	0.30	-	0.60
L1	0.25 BSC		
theta	0 °	-	8 °

TAPE AND REEL INFORMATION
Reel Dimensions

Tape Dimensions

Quadrant Assignments For PIN1 Orientation In Tape


RD	Reel Dimension	<input checked="" type="checkbox"/> 7inch	<input type="checkbox"/> 13inch
W	Overall width of the carrier tape	<input checked="" type="checkbox"/> 8mm	<input type="checkbox"/> 12mm <input type="checkbox"/> 16mm
P1	Pitch between successive cavity centers	<input type="checkbox"/> 2mm	<input checked="" type="checkbox"/> 4mm <input type="checkbox"/> 8mm
Pin1	Pin1 Quadrant	<input type="checkbox"/> Q1	<input type="checkbox"/> Q2 <input checked="" type="checkbox"/> Q3 <input type="checkbox"/> Q4