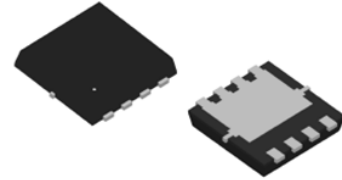


WPM3035

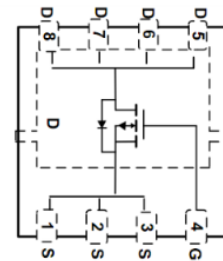
Single P-Channel,-30V,-23A,Power MOSFET

[Http://www.sh-willsemi.com](http://www.sh-willsemi.com)

V _{DS} (V)	Typical R _{DS(on)} (mΩ)
-30	16.5 @ V _{GS} =-10V
	24.0 @ V _{GS} =-4.5V



PDFN3333-8L



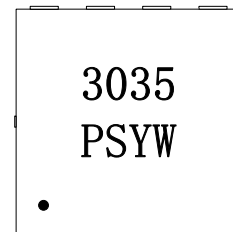
Pin configuration (Top view)

Descriptions

The WPM3035 is P-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 WPM3035 is Pb-free.

Features

- Trench Technology
- Supper high density cell design
- Excellent ON resistance
- Extremely Low Threshold Voltage
- Small package PDFN3333-8L



3035 = Device Code
 PS =Special Code
 Y = Year
 W = Week(A~z)

Marking

Applications

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

Order information

Device	Package	Shipping
WPM3035-8/TR	PDFN3333-8L	2500/Tape&Reel

Absolute Maximum ratings

Parameter	Symbol	Maximum	Unit	
Drain-Source Voltage	V_{DS}	30	V	
Gate-Source Voltage	V_{GS}	± 20		
Continuous Drain Current ^d	I_D	$T_C=25^\circ\text{C}$	-23	A
		$T_C=100^\circ\text{C}$	-14	A
Pulsed Drain Current ^c	I_{DM}	-80	A	
Continuous Drain Current	I_{DSM}	$T_A=25^\circ\text{C}$	-11	A
		$T_A=70^\circ\text{C}$	-9	
Avalanche Energy $L=0.3\text{mH}$	E_{AS}	43	mJ	
Power Dissipation ^b	P_D	$T_C=25^\circ\text{C}$	15	W
		$T_C=100^\circ\text{C}$	6	
Power Dissipation ^a	P_{DSM}	$T_A=25^\circ\text{C}$	3.7	W
		$T_A=70^\circ\text{C}$	2.4	
Operating Junction Temperature	T_J	-55 to 150	$^\circ\text{C}$	
Storage Temperature Range	T_{STG}	-55 to 150	$^\circ\text{C}$	

Thermal resistance ratings

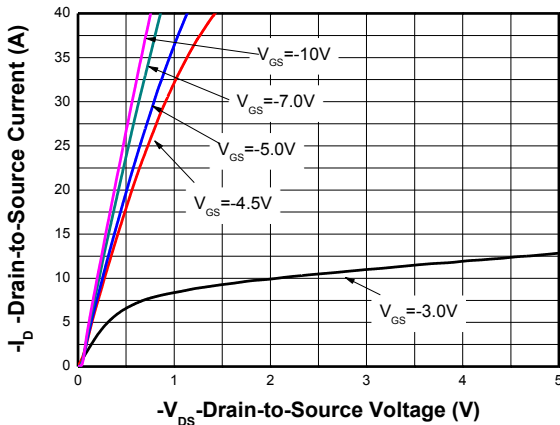
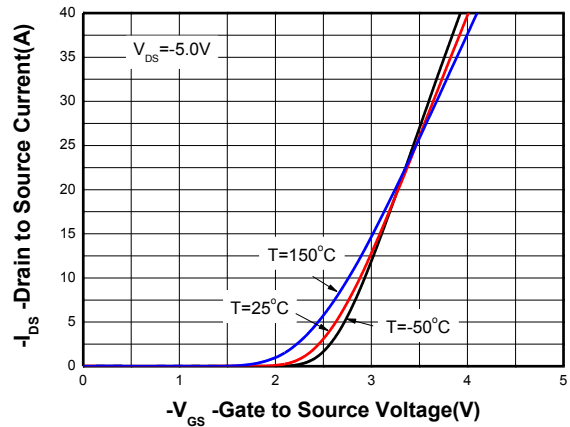
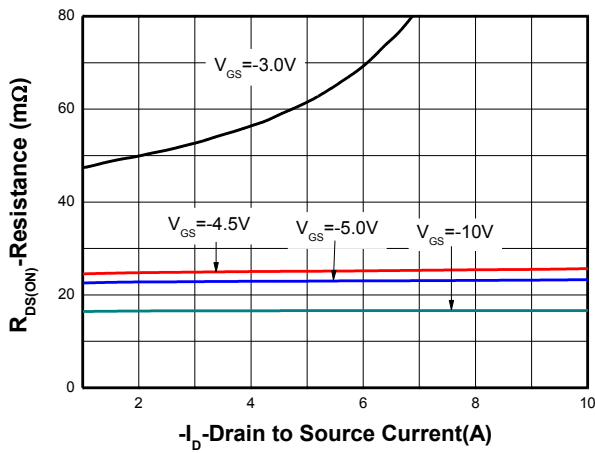
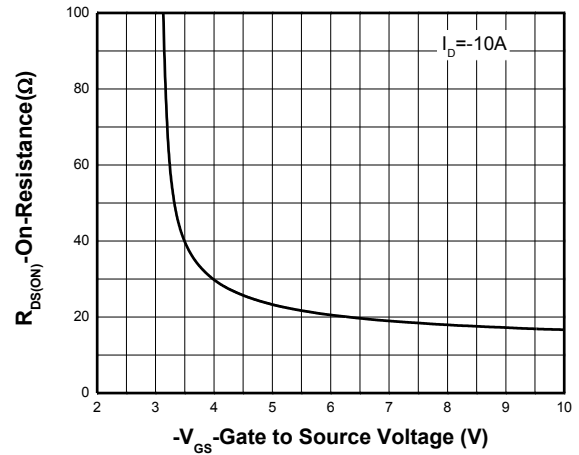
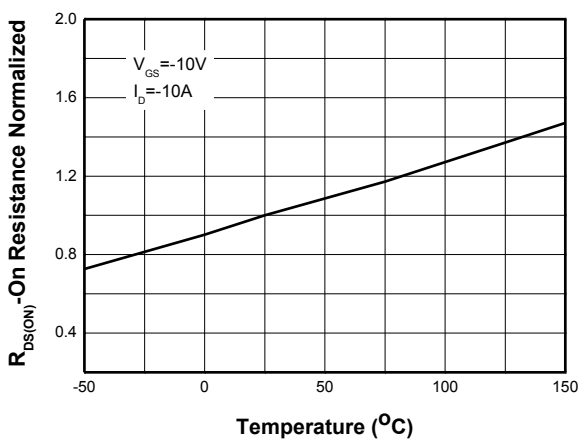
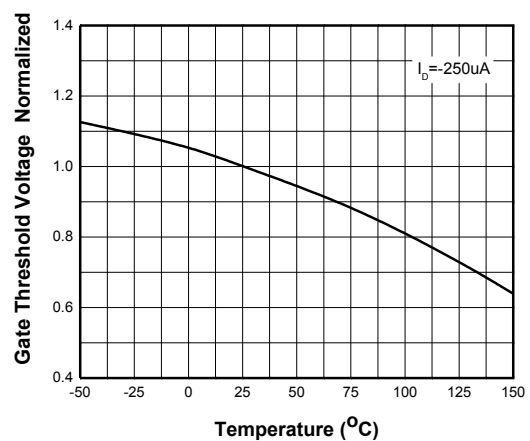
Single Operation					
Parameter	Symbol	Typical	Maximum	Unit	
Junction-to-Ambient Thermal Resistance ^a	$R_{\theta JA}$	$t \leq 10\text{ s}$	27	34	$^\circ\text{C/W}$
		Steady State	54	67	
Junction-to-Case Thermal Resistance	$R_{\theta JC}$	6.5	8.1		

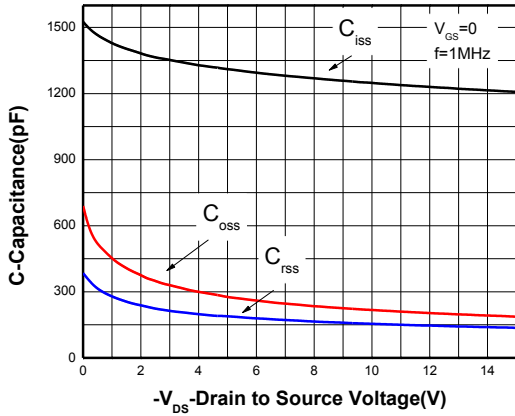
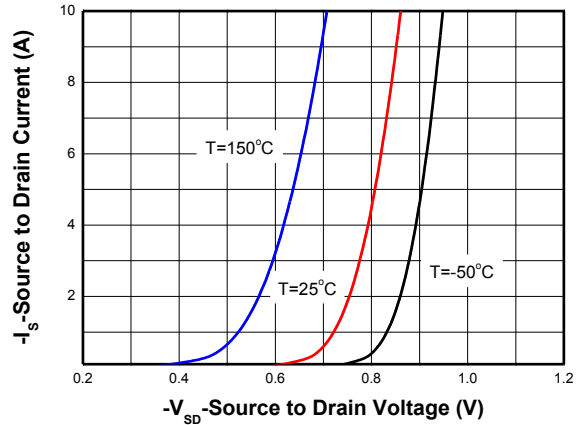
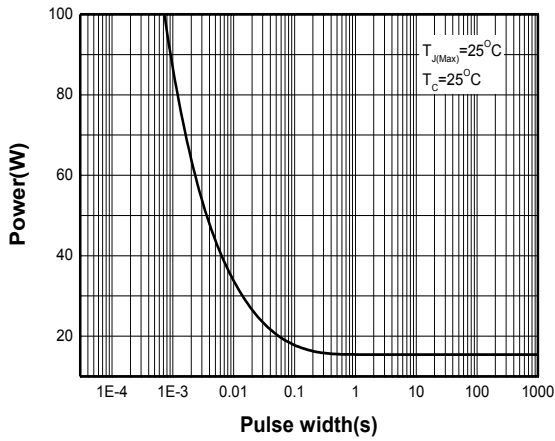
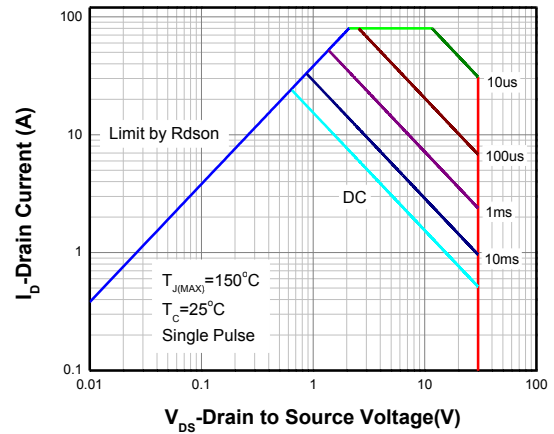
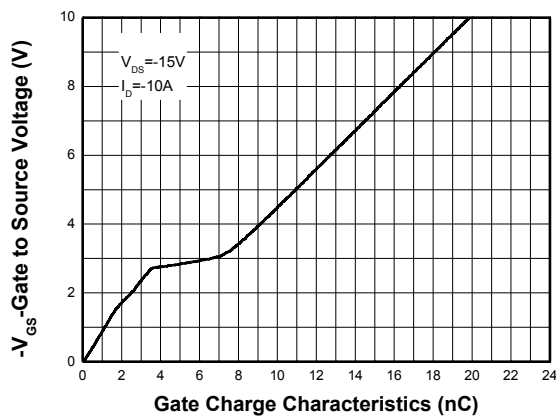
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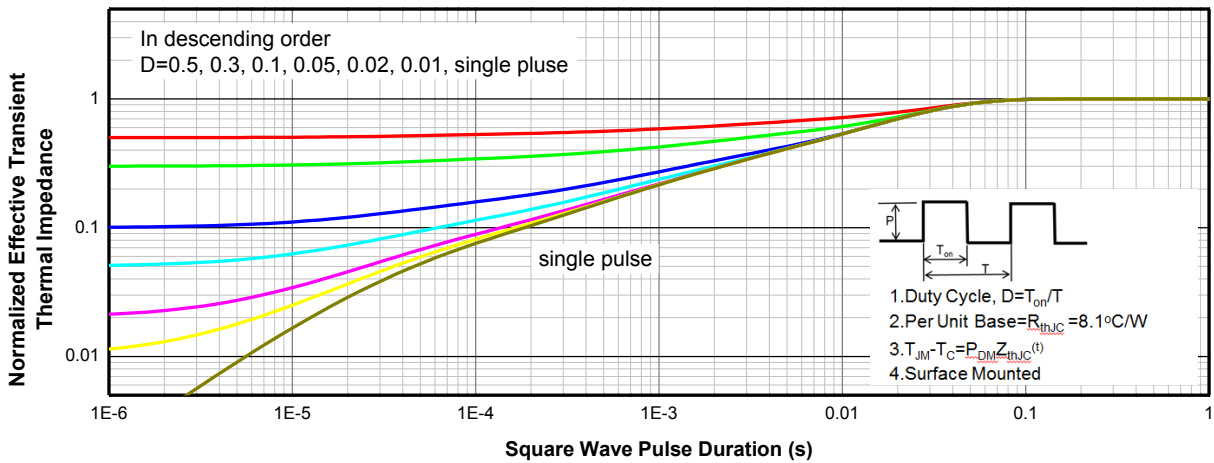
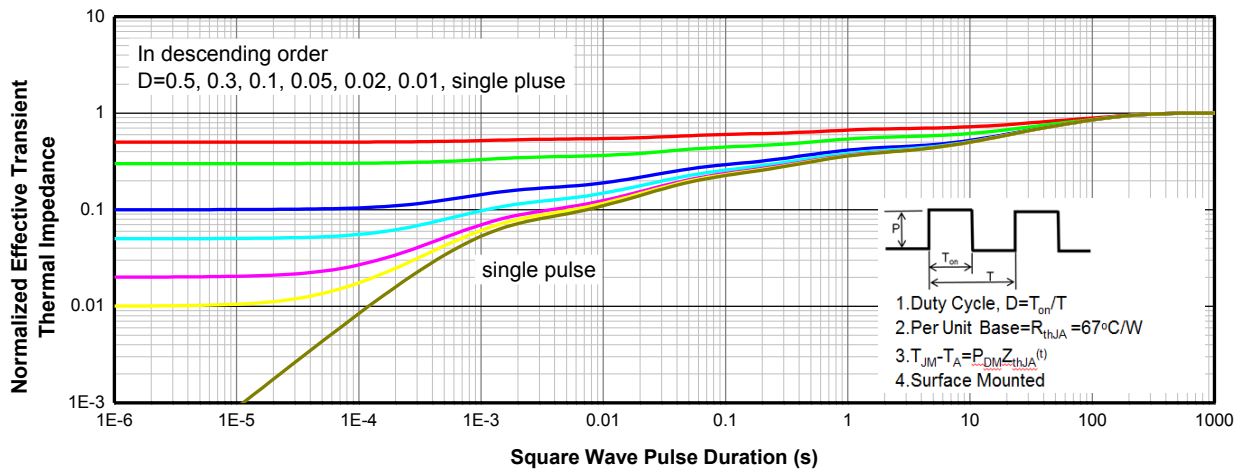
- a The value of $R_{\theta JA}$ is measured with the device mounted on 1-inch² (6.45cm²) with 2oz.(0.071mm thick) Copper pad on a 1.5*1.5 inch², 0.06-inch thick FR4 PCB, in a still air environment with $T_A = 25^\circ\text{C}$. The power dissipation P_{DSM} is based on $R_{\theta JA} t \leq 10\text{s}$ value and the $T_{J(MAX)}=150^\circ\text{C}$. The value in any given application is determined by the user's specific board design.
- b The power dissipation P_D is based on $T_{J(MAX)}=150^\circ\text{C}$, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.
- c Repetitive rating, ~10us pulse width, duty cycle ~1%, keep initial $T_J = 25^\circ\text{C}$, the maximum allowed junction temperature of 150 $^\circ\text{C}$.
- d The maximum current rating by source bonding technology.
- e The static characteristics are obtained using ~380us pulses, duty cycle ~1%.

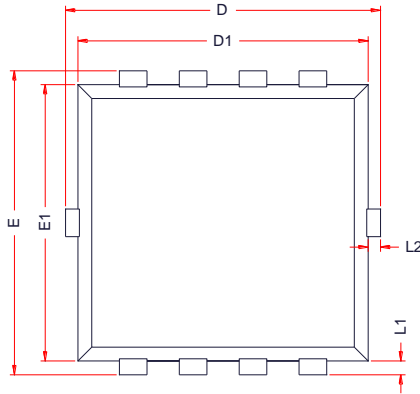
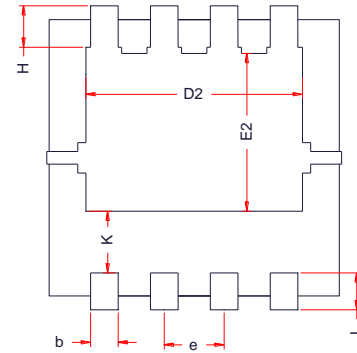
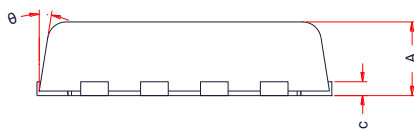
Electronics Characteristics (Ta=25°C, unless otherwise noted)

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	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_D = -250\mu\text{A}$	-1.3	-1.6	-2.4	V
Drain-to-source On-resistance	$R_{DS(on)}$	$V_{GS} = -10\text{ V}, I_D = -10\text{ A}$		16.5	20	m Ω
		$V_{GS} = -4.5\text{ V}, I_D = -8\text{ A}$		24.0	32	
Forward Transconductance	g_{FS}	$V_{DS} = -15\text{ V}, I_D = -10\text{ A}$		6		S
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C_{ISS}	$V_{GS} = 0\text{ V}, F = 1.0\text{ MHz},$ $V_{DS} = -15\text{ V}$		1200		pF
Output Capacitance	C_{OSS}			180		
Reverse Transfer Capacitance	C_{RSS}			130		
Total Gate Charge	$Q_{G(TOT)}$	$V_{GS} = -10\text{ V}, V_{DS} = -24\text{ V},$ $I_D = -10\text{ A}$		20		nC
Threshold Gate Charge	$Q_{G(TH)}$			1.7		
Gate-to-Source Charge	Q_{GS}			3.4		
Gate-to-Drain Charge	Q_{GD}			3.6		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_{d(ON)}$	$V_{GS} = -10\text{ V}, V_{DD} = -24\text{ V},$ $I_D = -10\text{ A}, R_G = 3.3\Omega$		10		ns
Rise Time	t_r			19.2		
Turn-Off Delay Time	$t_{d(OFF)}$			53.6		
Fall Time	t_f			14.4		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V_{SD}	$V_{GS} = 0\text{ V}, I_S = -1\text{ A}$		-0.7	-1.2	V

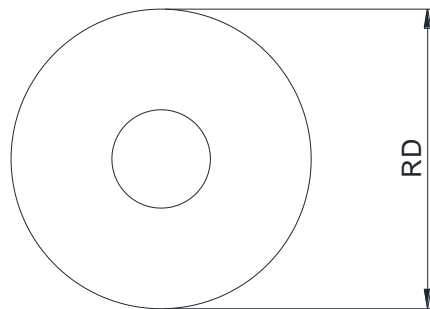
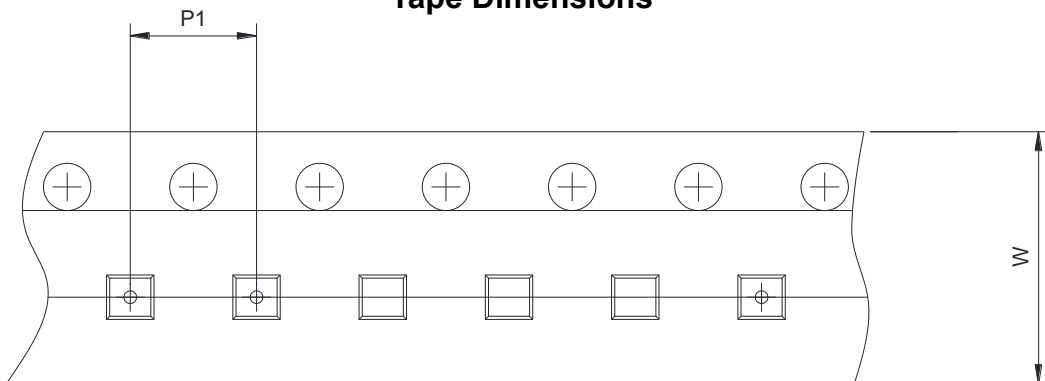
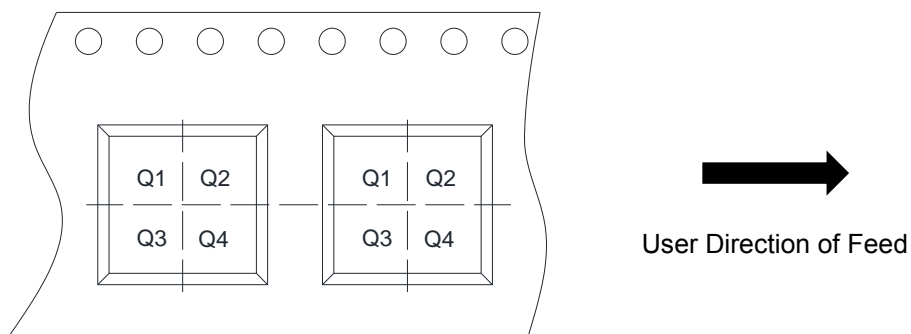
Typical Characteristics (Ta=25°C, unless otherwise noted)

Output Characteristics ^e

Transfer Characteristics ^e

On-Resistance vs. Drain Current ^e

On-Resistance vs. Gate-to-Source Voltage ^e

On-Resistance vs. Junction Temperature ^e

Threshold voltage vs. Temperature


Capacitance

Body Diode Forward Voltage^e

Single pulse power

Safe operating power

Gate Charge Characteristics


Transient thermal response (Junction-to-Case)

Transient Thermal Response (Junction-to-Ambient)

PACKAGE OUTLINE DIMENSIONS
PDFN3333-8L

TOP VIEW

BOTTOM VIEW

SIDE VIEW

Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.70	0.80	0.90
b	0.25	0.30	0.35
c	0.14	0.15	0.20
D	3.10	3.30	3.50
D1	3.05	3.15	3.25
D2	2.35	2.45	2.55
e	0.55	0.65	0.75
E	3.10	3.30	3.50
E1	2.90	3.00	3.10
E2	1.64	1.74	1.84
H	0.32	0.42	0.52
K	0.59	0.69	0.79
L	0.25	0.40	0.55
L1	0.10	0.15	0.20
L2	-	-	0.15
θ	8°	10°	12°

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 <input type="checkbox"/> 16mm
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