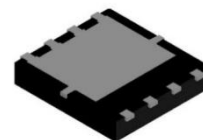


SNM063R4DNA

Single N-Channel, 60V, 100A, Power MOSFET

<http://www.sitcores.com/>

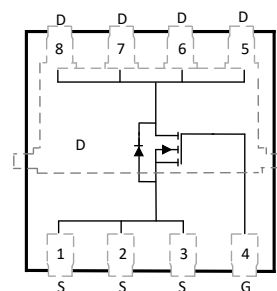
V_{DS} (V)	Max. $R_{DS(on)}$ (m Ω)
60	3.4 @ $V_{GS}=10V$
	6.0 @ $V_{GS}=6V$



Description

The SNM063R4DNA 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 SNM063R4DNA is in compliance with RoHS.

PDFN5X6-8L



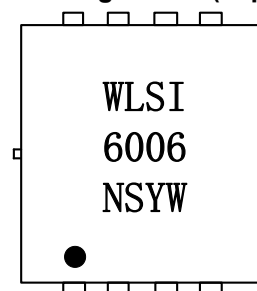
Features

- Trench Technology
- Supper high density cell design
- Low ON resistance
- Package PDFN5X6-8L

Applications

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

Pin configuration (Top view)



WLSI = Company (Group) Code
 6006 = Device Code
 NS = Special Code
 Y = Year
 W = Week (A~z)

Marking

Order information

Device	Package	Shipping
SNM063R4DN A-8/TR	PDFN5X6-8L	5000/Tape&Reel

Absolute Maximum ratings

Parameter	Symbol	Maximum	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	I_D	$T_C=25^{\circ}\text{C}$ 100	A
		$T_C=100^{\circ}\text{C}$ 63	A
Pulsed Drain Current ^c	I_{DM}	310	A
Continuous Drain Current	I_{DSM}	$T_A=25^{\circ}\text{C}$ 32	A
		$T_A=70^{\circ}\text{C}$ 25	
Avalanche Energy $L=0.3\text{mH}$	E_{AS}	158	mJ
Power Dissipation ^b	P_D	$T_C=25^{\circ}\text{C}$ 62	W
		$T_C=100^{\circ}\text{C}$ 25	
Power Dissipation ^d	P_{DSM}	$T_A=25^{\circ}\text{C}$ 6.3	W
		$T_A=70^{\circ}\text{C}$ 4.0	
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

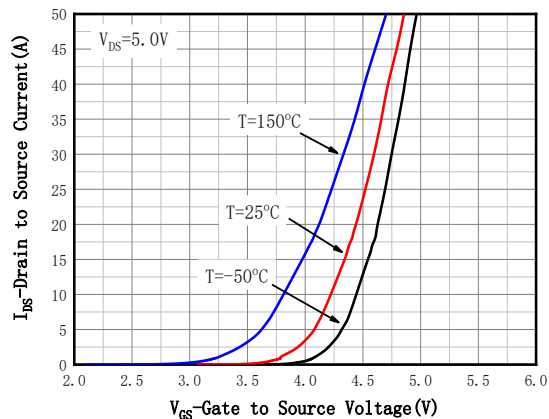
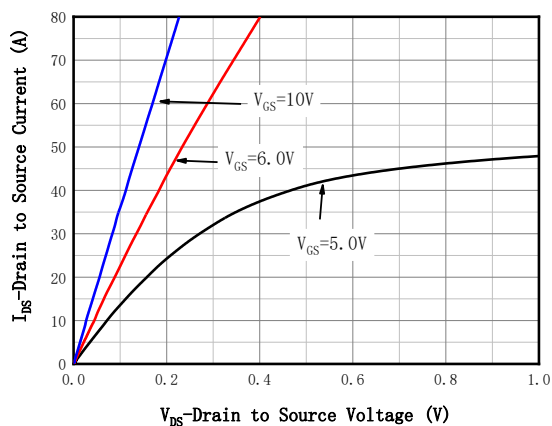
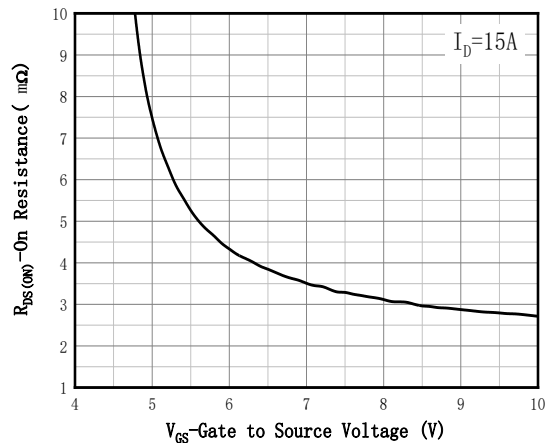
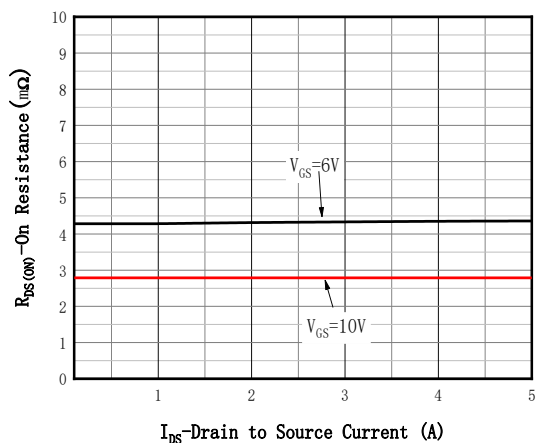
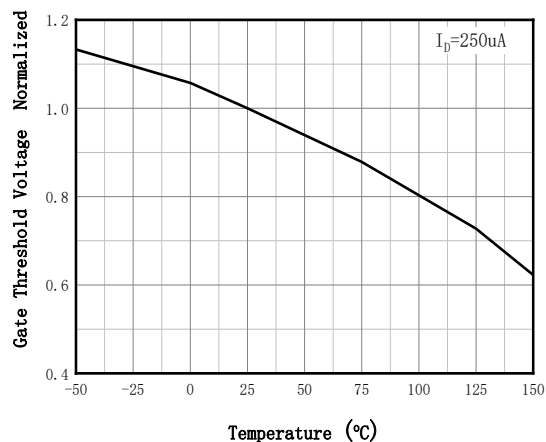
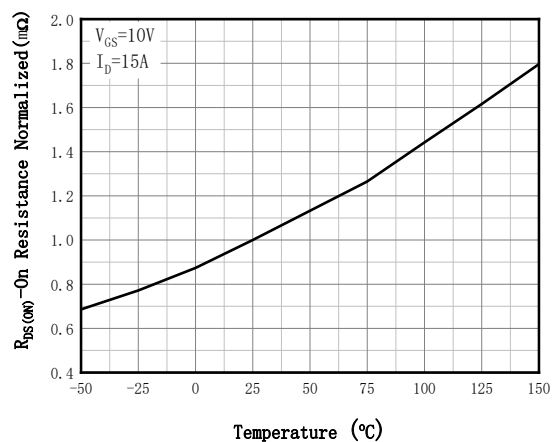
Single Operation					
Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance ^a	$t \leq 10\text{ s}$	$R_{\theta JA}$	16	20	$^{\circ}\text{C/W}$
	Steady State		41	50	
Junction-to-Case Thermal Resistance	Steady State	$R_{\theta JC}$	1.5	2.0	

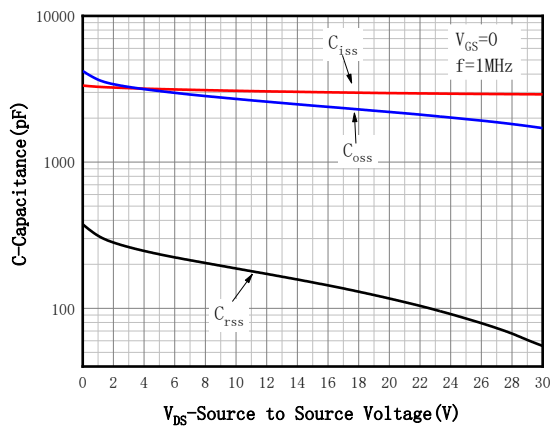
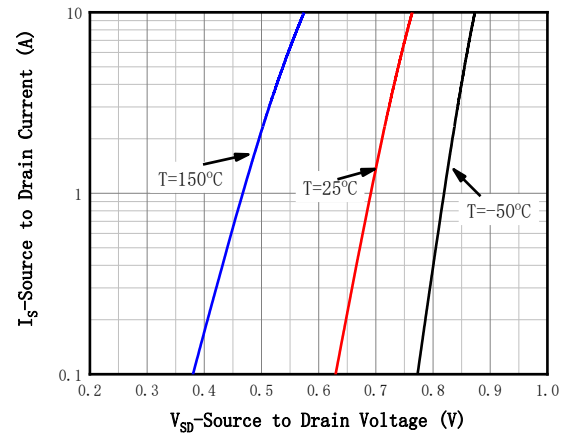
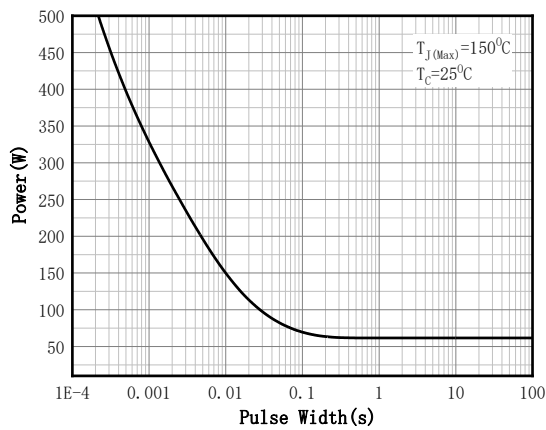
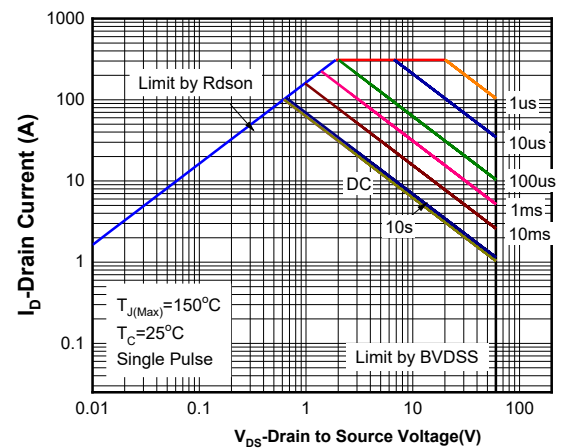
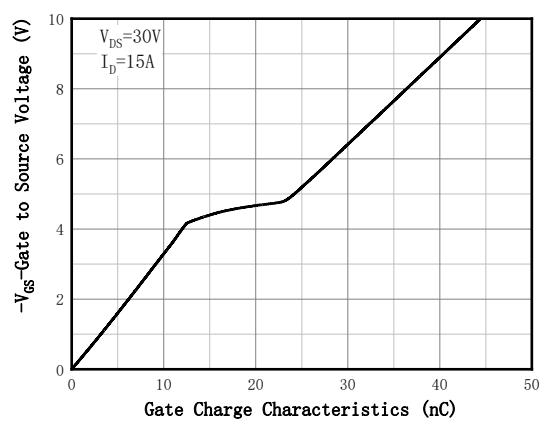
Note:

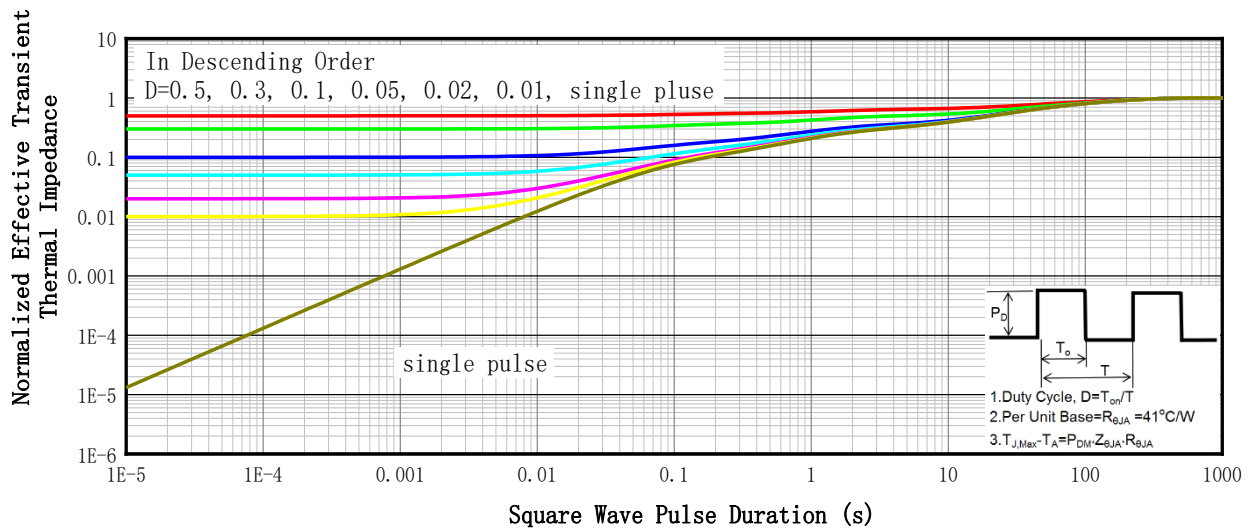
- a FR-4 board (38mm X 38mm X t1.6mm, 70um Copper) partially covered with copper (645mm² area).
- b The power dissipation P_D is based on $T_{J(MAX)}=150^{\circ}\text{C}$, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat 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°C .
- d The power dissipation P_{DSM} is based on Junction-to-Ambient thermal resistance $R_{\theta JA}$ $t \leq 10\text{s}$ value and the $T_{J(MAX)}=150^{\circ}\text{C}$.
- e The static characteristics are obtained using ~380us pulses, duty cycle ~1%.

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

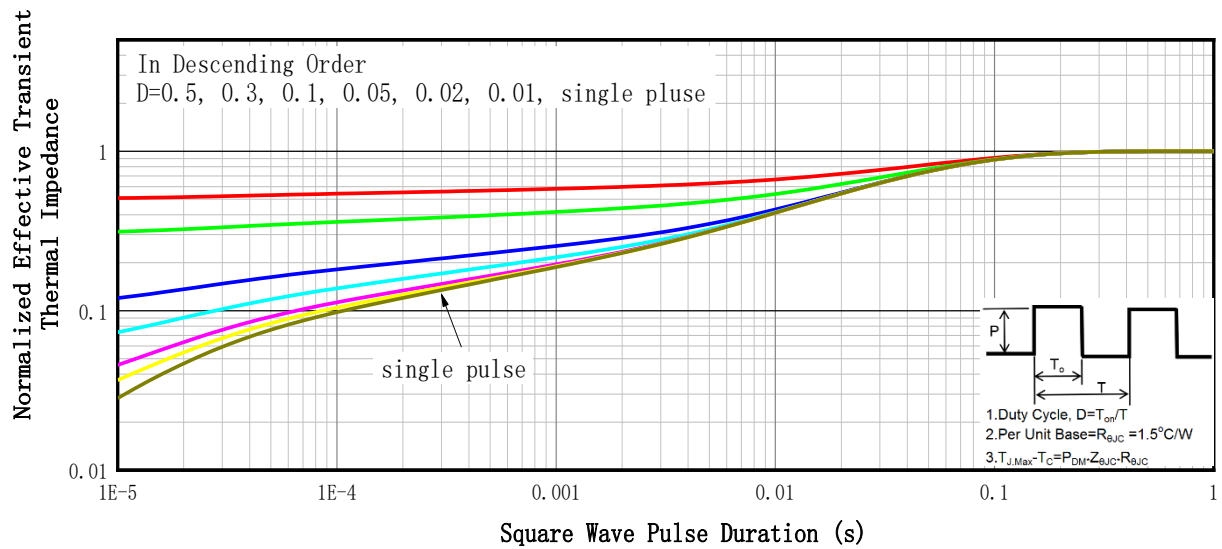
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0 V, I _D = 250uA	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =48V, V _{GS} = 0V			1	uA
Gate-to-source Leakage Current	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _D = 250uA	2	3	4	V
Drain-to-source On-resistance	R _{DS(on)}	V _{GS} =10V, I _D = 15A		2.5	3.4	mΩ
Drain-to-source On-resistance	R _{DS(on)}	V _{GS} =6V, I _D = 10A		4.2	6.0	mΩ
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C _{ISS}	V _{GS} = 0V, f = 1.0MHz, V _{DS} = 30 V		2910		pF
Output Capacitance	C _{OSS}			1720		
Reverse Transfer Capacitance	C _{RSS}			55		
Total Gate Charge	Q _{G(TOT)}	V _{GS} = 10 V, V _{DS} = 30V, I _D = 15A		42		nC
Threshold Gate Charge	Q _{G(TH)}			9.0		
Gate-to-Source Charge	Q _{GS}			14		
Gate-to-Drain Charge	Q _{GD}			7.5		
Gate Resistance	R _g	f=1MHz		1.2		Ω
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	td(ON)	V _{GS} = 10 V, V _{DS} = 30 V, R _G =4.7Ω,ID=15A		17		ns
Rise Time	tr			37		
Turn-Off Delay Time	td(OFF)			33		
Fall Time	tf			23		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V _{SD}	V _{GS} = 0 V, I _S = 1A		0.7	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. Temperature

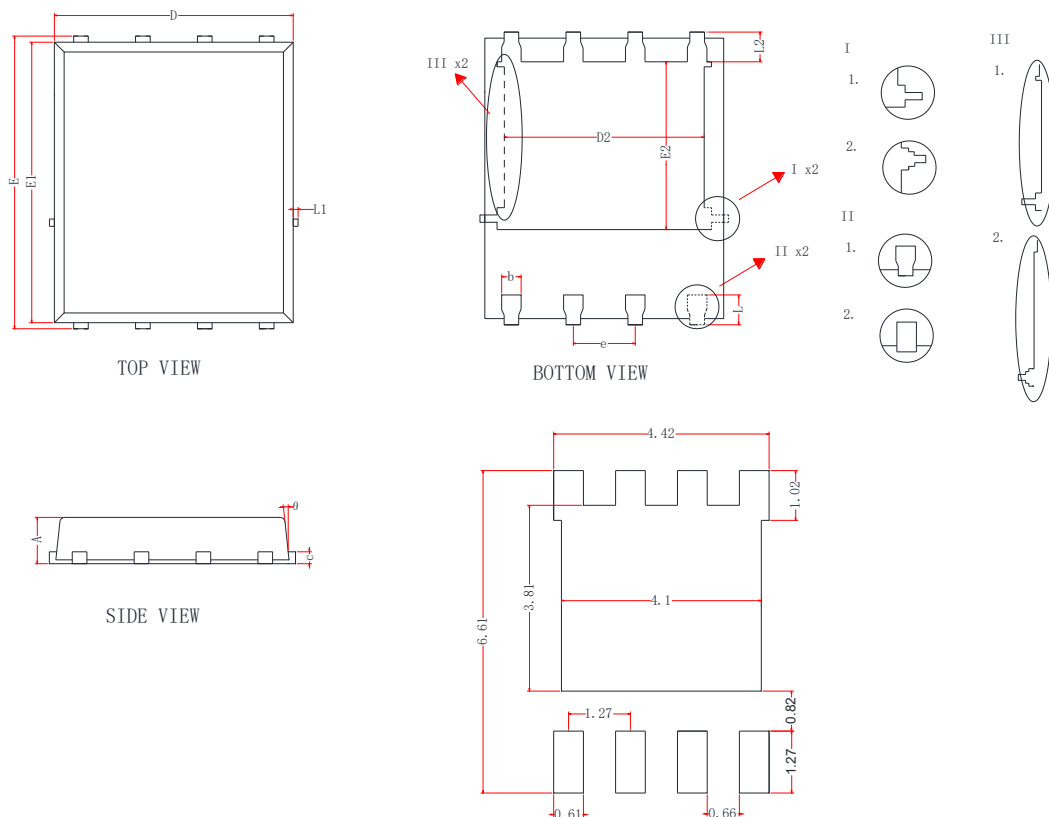

Capacitance

Body Diode Forward Voltage^e

Single Pulse power

Safe Operating Power

Gate Charge Characteristics



Transient Thermal Response (Junction-to- Ambient)

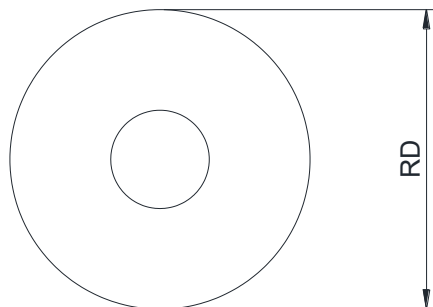
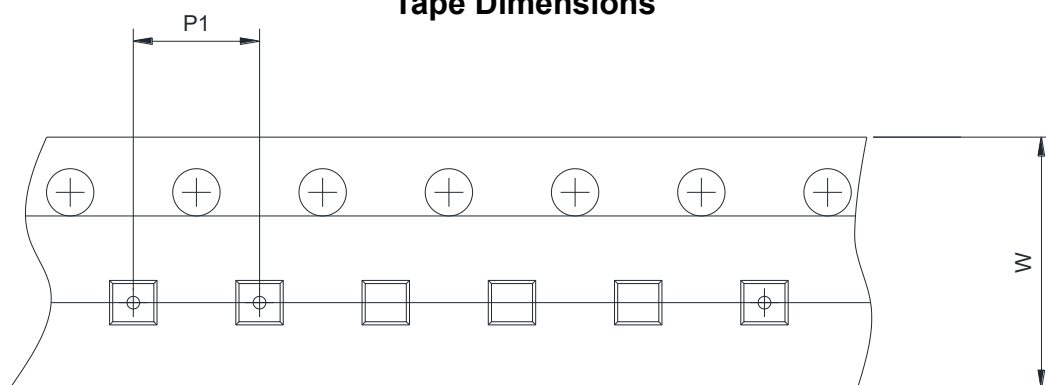
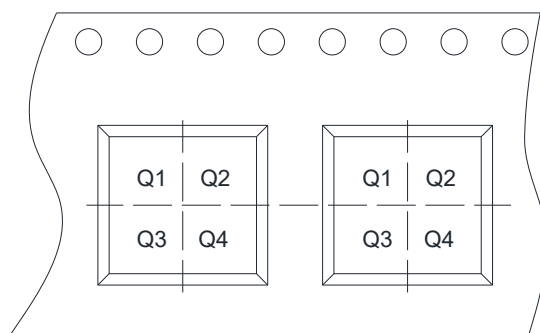


Transient Thermal Response (Junction-to-Case)

PACKAGE OUTLINE DIMENSIONS
PDFN5X6-8L


RECOMMENDED LAND PATTERN(Unit:mm)

Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.85	0.95	1.00
c	0.15	-	0.34
D	4.80	-	5.30
D2	3.82	-	4.45
E	5.90	-	6.15
E1	5.45	-	5.80
E2	3.18	3.45	3.73
e	1.27BSC		
b	0.30	0.40	0.50
L	0.45	-	0.71
L1	0.00	-	0.15
L2	0.68Ref		
θ	0°	-	12°

TAPE AND REEL INFORMATION
Reel Dimensions

Tape Dimensions

Quadrant Assignments For PIN1 Orientation In Tape


User Direction of Feed

RD	Reel Dimension	☐ 7inch	☒ 13inch		
W	Overall width of the carrier tape	☐ 8mm	☒ 12mm	☐ 16mm	
P1	Pitch between successive cavity centers	☐ 2mm	☐ 4mm	☒ 8mm	
Pin1	Pin1 Quadrant	☒ Q1	☐ Q2	☐ Q3	☐ Q4