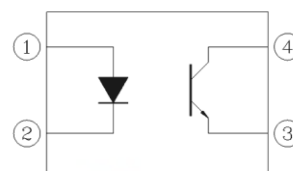
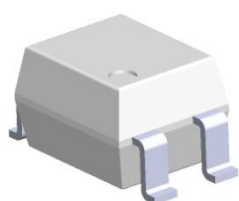


4 PIN DIP VERY HIGH ISOLATION VOLTAGE PHOTOCOUPLER CNY64(DFS) Series



1. Anode
2. Cathode
3. Emitter
4. Collector

Features:

- High Voltage , $BV_{CEO}=80V$ (min)
- Operating temperature up to $+85^{\circ}C$
- High isolation voltage between input and output
 $V_{IOTM} = 8200$ V peak for CNY64
 $V_{IOTM} = 10000$ V peak for CNY64-V
- Rated recurring peak voltage (repetitive), $V_{IORM} = 2200$ V
- Creepage current resistance according to VDE 0303/IEC 60112
 comparative tracking index: $CTI \geq 200$
- Thickness through insulation $\geq 3mm$
- Pb free and RoHS compliant.
- CUL approved (No. E214129)
- VDE approved (No. 40027351)
- FIMKO approved (No. 28110)

Description

The CNY64(DFS)series contains an infrared emitting diode optically coupled to a phototransistor. These devices are packaged in an 4-pin SMD package and providing a distance between input and output for highest safety requirement of $>3mm$.

Applications

- Switch mode power supply
- Line receiver
- Computer peripheral interface
- Microprocessor system interface
- Circuits for safe protective separation against electrical shock according to safety class II (reinforced isolation):
 - for appl. class I - IV at mains voltage ≤ 300 V
 - for appl. class I - IV at mains voltage ≤ 600 V
 - for appl. class I - III at mains voltage ≤ 1000 V
 according to DIN EN 60747-5-5.

Absolute Maximum Ratings (T_a=25°C)

	Parameter	Symbol	Rating	Unit
Input	Forward current	I _F	75	mA
	Peak forward current (<10μs)	I _{FM}	1.5	A
	Reverse voltage	V _R	5	V
	Power dissipation	P _D	120	mW
Output	Collector current	I _C	50	mA
	Collector power dissipation	P _C	150	mW
	Collector-Emitter voltage	V _{CEO}	80	V
	Emitter-Collector voltage	V _{ECO}	7	V
Total Power Dissipation		P _{TOT}	250	mW
Isolation Voltage* ¹		V _{ISO}	8200	V rms
Operating Temperature		T _{OPR}	-55 to 85	°C
Storage Temperature		T _{STG}	-55 to 100	°C
Soldering Temperature* ²		T _{SOL}	260	°C

Notes:

*1 AC for 1 minute, R.H.= 40 ~ 60% R.H. In this test, pins 1, 2 are shorted together, and pins 3, 4 are shorted together.

*2 2mm from case, <10 seconds

Electro-Optical Characteristics (Ta=25°C unless specified otherwise)

Input

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward voltage	V_F	-	1.6	2.0	V	$I_F = 50\text{mA}$
Reverse current	I_R	-	-	10	μA	$V_R = 5\text{V}$
Input capacitance	C_{in}	-	-	100	pF	$V = 0, f = 1\text{MHz}$

Output

Parameter	Symbol	Min	Typ.	Max.	Unit	Condition
Collector-Emitter dark current	I_{CEO}	-	-	200	nA	$V_{CE} = 20\text{V}, I_F = 0\text{mA}$
Collector-Emitter breakdown voltage	BV_{CEO}	80	-	-	V	$I_C = 1\text{mA}$
Emitter-Collector breakdown voltage	BV_{ECO}	7	-	-	V	$I_E = 0.1\text{mA}$
Collector-Emitter capacitance	C_{CE}	-	-	50	pF	$V_{CE} = 0\text{V}, f = 1\text{MHz}$

Transfer Characteristics

Parameter	Symbol	Min	Typ.	Max.	Unit	Condition
Current Transfer ratio	CTR	63	-	300	%	$I_F = 5\text{mA}, V_{CE} = 5\text{V}$
Collector-Emitter saturation voltage	$V_{CE(sat)}$	-	-	0.3	V	$I_F = 10\text{mA}, I_C = 1\text{mA}$
Coupling capacitance	C_{IO}	0.3			pF	$f=1\text{MHz}$
Isolation resistance	R_{IO}	10^{11}	-	-	Ω	$V_{IO} = 500\text{Vdc},$
Turn-on time	T_{on}	-	6	18	μs	$V_{CC} = 5\text{V},$ $I_C = 5\text{mA}, R_L = 100\Omega$
Turn-off time	T_{off}	-	7	18		
Rise time	t_r	-	3	18		
Fall time	t_f	-	5	18		

* Typical values at $T_a = 25^\circ\text{C}$

Typical Electro-Optical Characteristics Curves

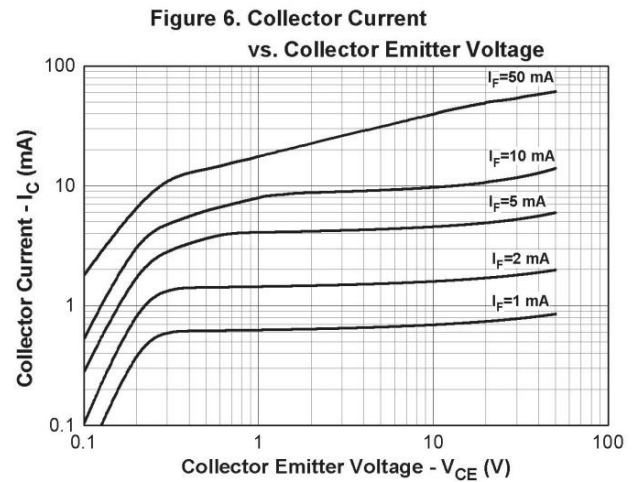
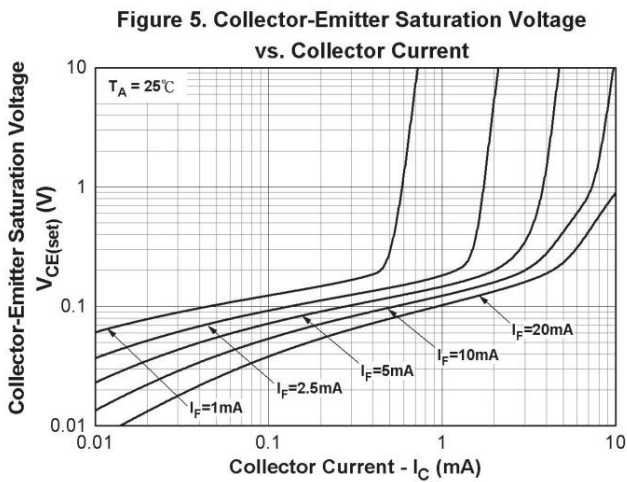
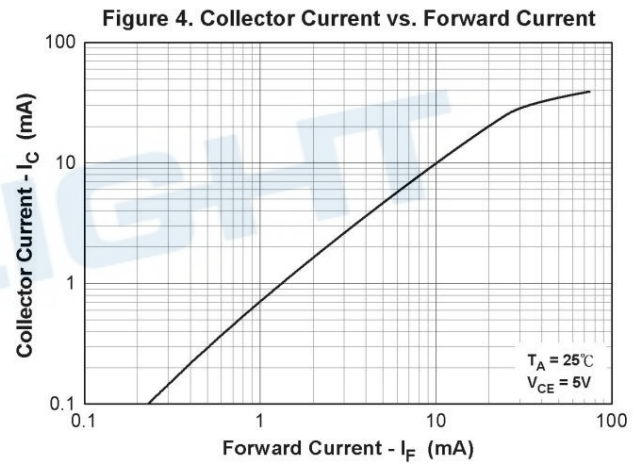
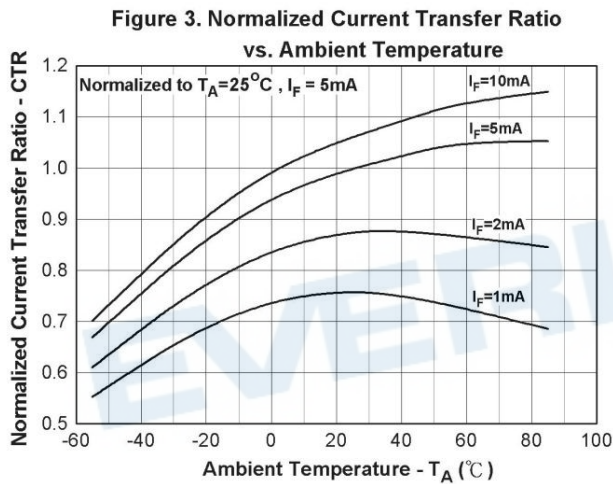
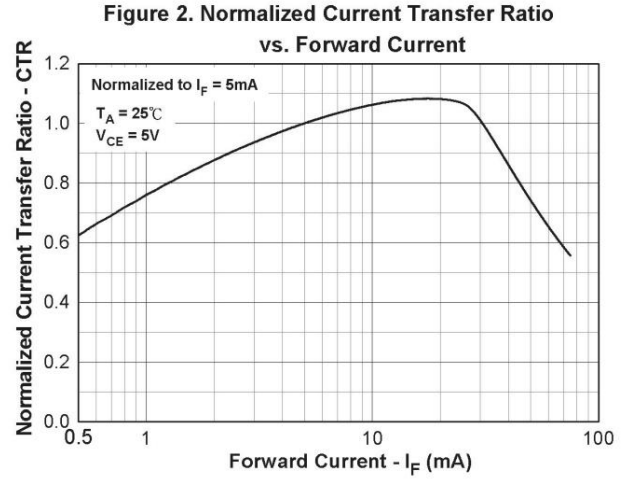
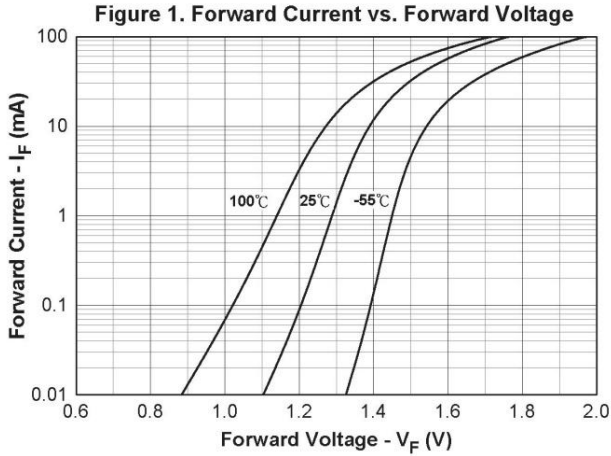


Figure.7 Collector Dark Current vs. Ambient Temperature

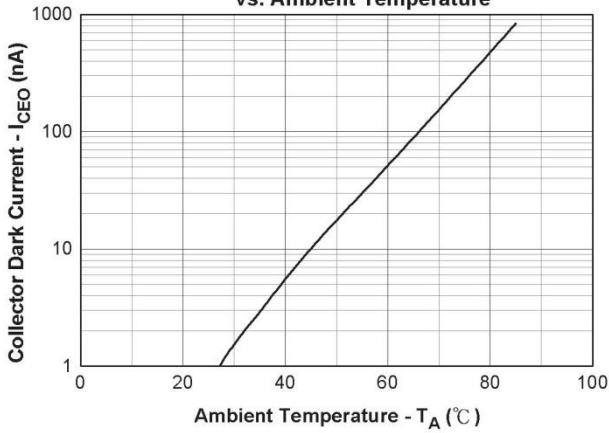


Figure 8. Turn on/off Time vs. Forward Current

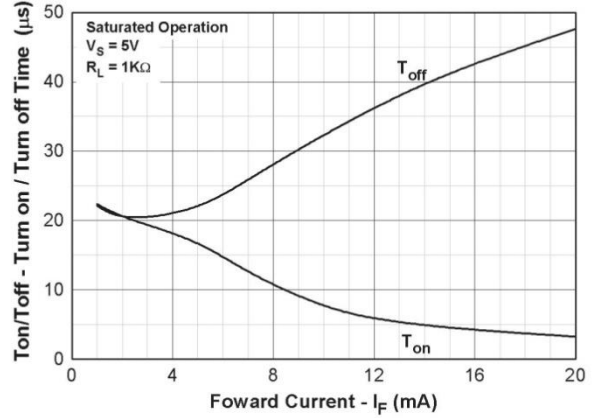


Figure 9. Turn on/off Time vs. Collector Current

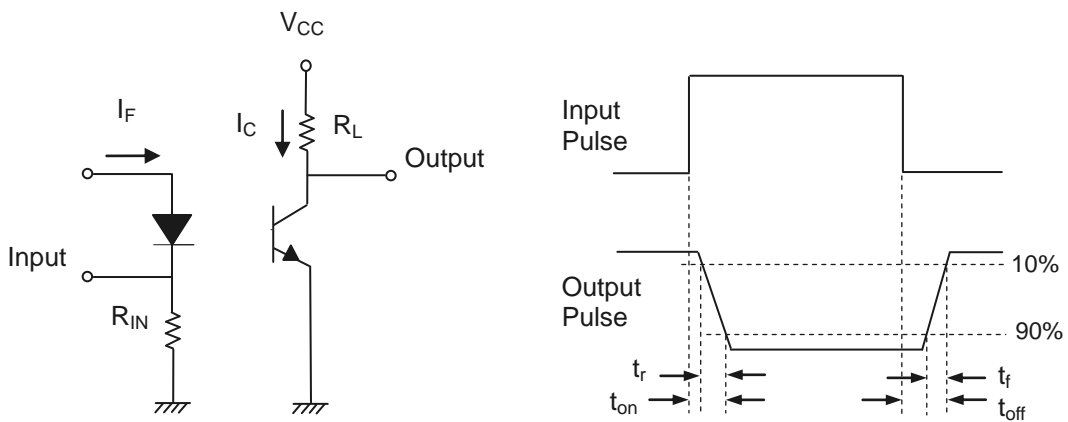
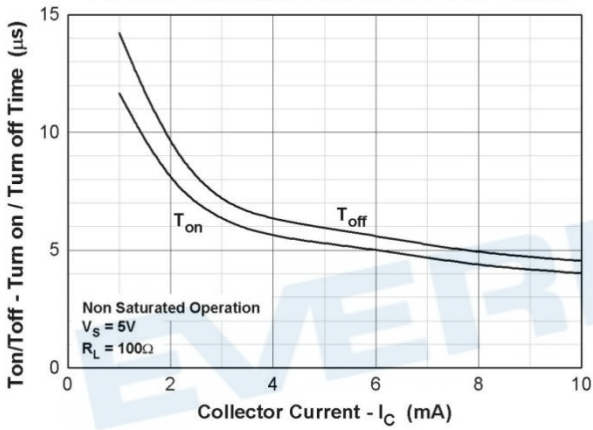


Figure 10. Switching Time Test Circuit & Waveforms

Order Information

Part Number

CNY64S(Z)(DFS)-V

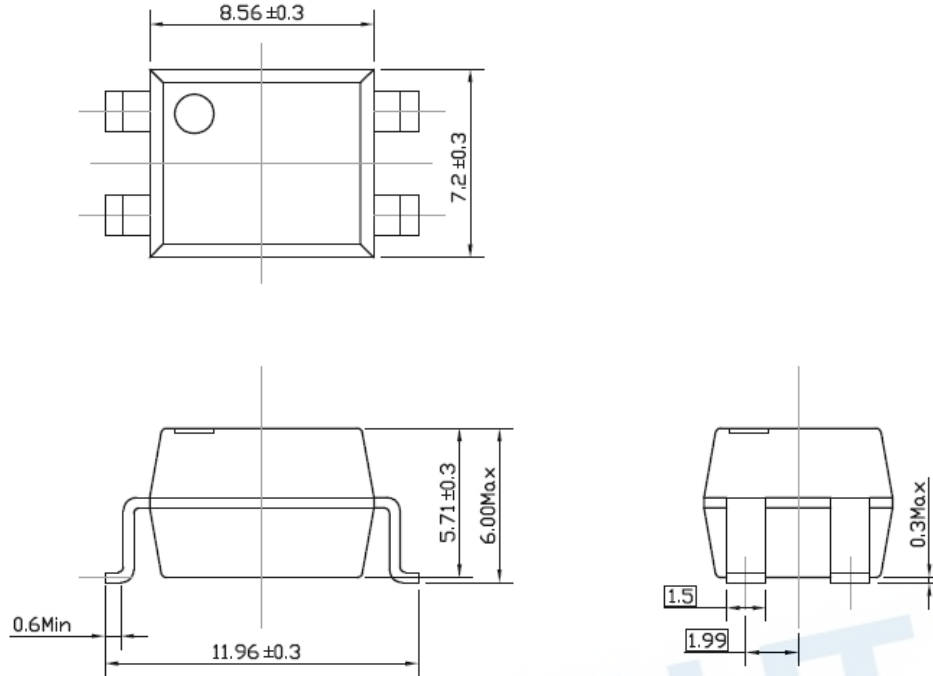
Note

- S = Lead frame option SMD type
- Z = Tape and reel (TA)
- DFS= Customer code
- V = VDE safety (optional)

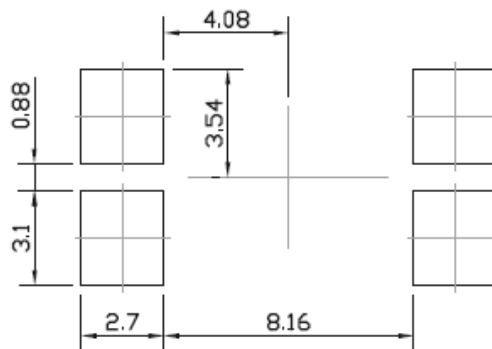
Option	Description	Packing quantity
CNY64S	Standard	60 units per tube
CNY64S-V	Standard + VDE	60 units per tube
CNY64S(TA)	Surface mount lead form + tape & reel option	500 units per reel
CNY64S(TA)-V	Surface mount lead form + tape & reel option + VDE	500 units per reel

EVERLIGHT

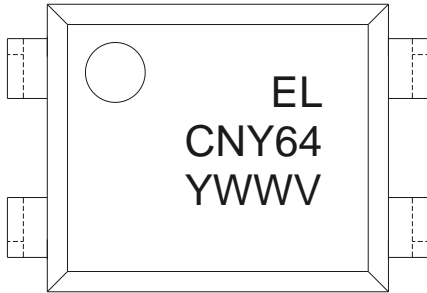
Package Dimension (Dimensions in mm)



Recommended pad layout for surface mount leadform



Device Marking



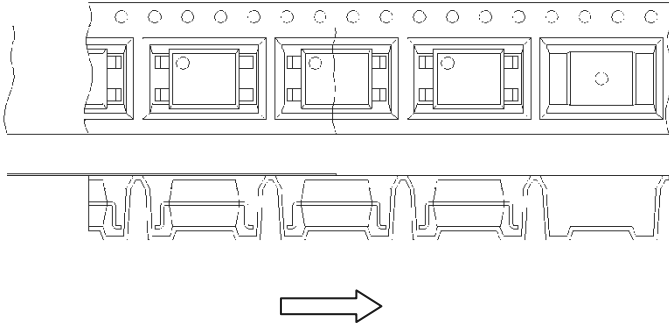
Notes

EL	denotes Everlight
CNY64	denotes Part no.
Y	denotes 1 digit Year code
WW	denotes 2 digit Week code
V	denotes VDE safety (optional)

EVERLIGHT

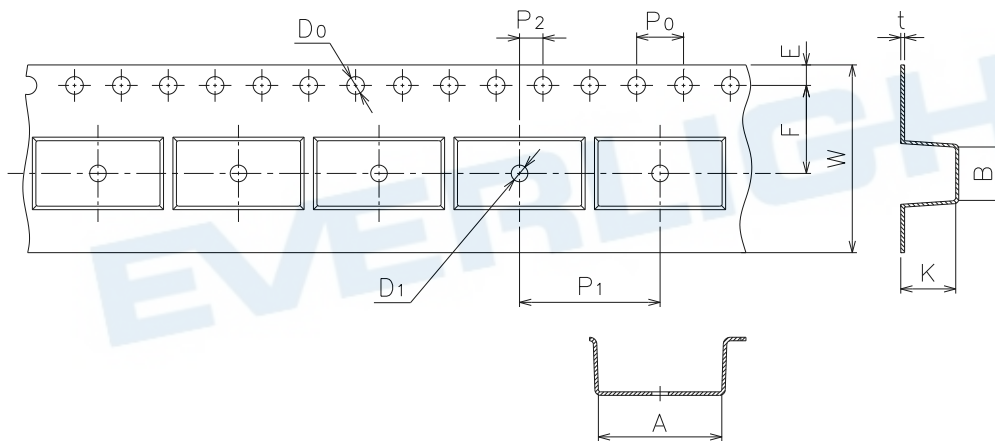
Tape & Reel Packing Specifications

Option TA



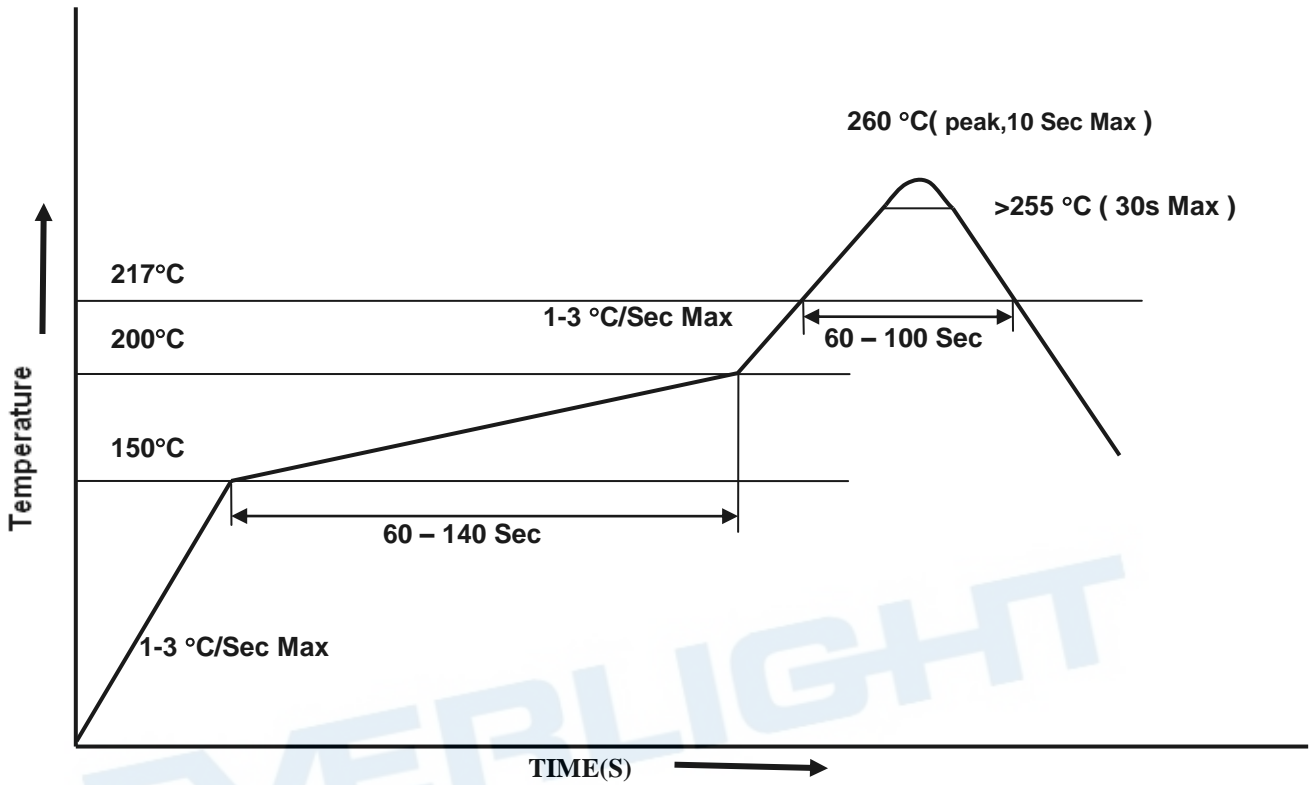
Direction of feed from reel

Tape dimensions



Dimension No.	A	B	Do	D1	E	F
Dimension(mm)	12.6±0.1	6.6±0.1	1.5+0.1/-0	1.5±0.1	1.75±0.1	7.5±0.1
Dimension No.	Po	P1	P2	t	W	K
Dimension(mm)	4.0±0.1	16.0±0.1	2.0±0.1	0.5±0.05	16.0±0.3	7.31±0.1

Solder Reflow Temperature Profile



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