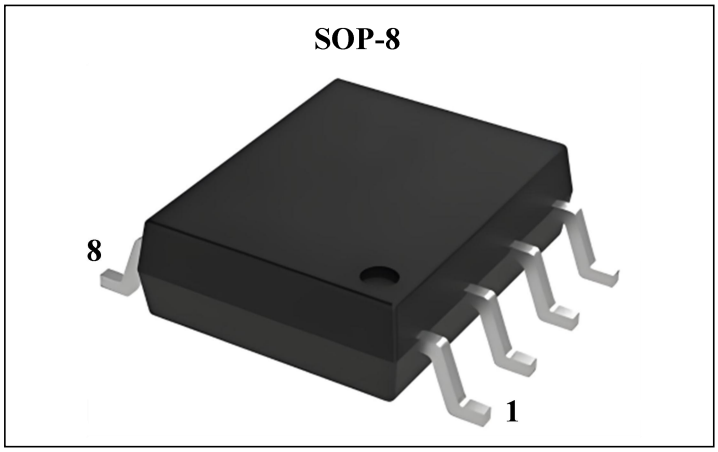
TN07N60PA

N-Channel Enhancement Mode Power MOSFET

Features

- V_{DS}= 60V,I_D= 7A
  $R_{DS}(on)$<30mΩ @V_{GS}= 10V
  $R_{DS}(on)$<40mΩ @V_{GS}= 4.5V
- Advanced Trench Technology
- Halogen and Antimony Free
- Moisture Sensitivity Level 3
- RoHS Compliant



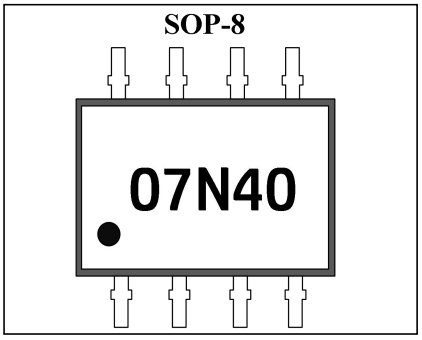
Mechanical Characteristics

- Package:SOP-8
- Packaging: Tape and Reel per EIA 481
- Marking : Making Code

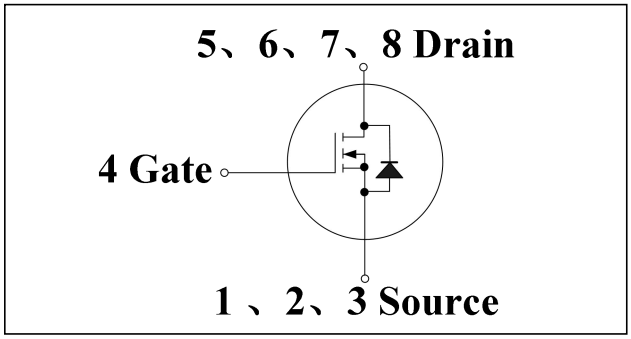
Applications

- Power Management
- Battery Protection
- Industrial DC/DC Conversion Circuits

Marking : Making Code



Schematic Diagram



Absolute Maximum Rating(Ratings at 25 °C ambient temperature unless otherwise specified.)

Parameter	Symbols	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	7	A
Drain Current-Pulsed Note1	I_{DM}	30	A
Single Pulsed Avalanche Energy Note2	E_{AS}	21	mJ
Junction Temperature	P_D	2	W
Maximum Power Dissipation	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance,Junction-to-Ambient Note2	$R_{\theta JA}$	62.5	°C/W

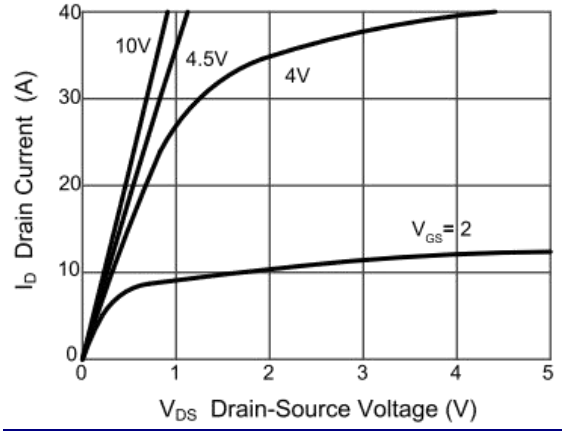
Electrical Characteristics(Tc=25°C Unless otherwise specified)

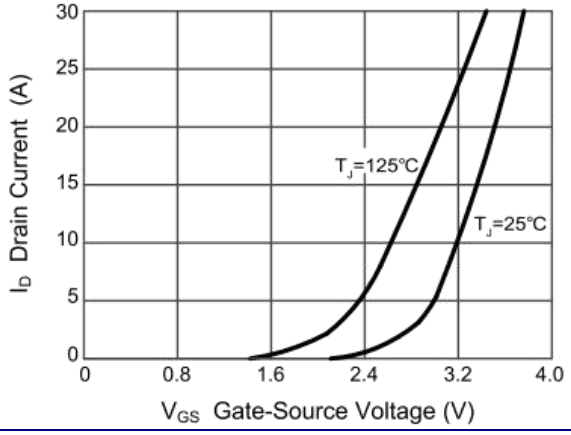
Parameter	Symbols	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250μA	60	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V,V_{GS}=0V	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	--	--	±100	μA
Gate Threshold Voltage Note3	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	1.0	1.5	2.5	V
Drain-Source On-Resistance Note3	$R_{DS(ON)}$	V_{GS}=10V,I_D=7A	--	25	30	
		V_{GS}=4.5V,I_D=6A	--	31	40	mΩ
Forward Transconductance Note4	g_{FS}	V_{DS}=5V,I_D=2A	--	7	--	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=25V,V_{GS}=0V,f=1MHz	--	1200	--	pF
Output Capacitance	C_{oss}		--	72	--	pF
Reverse Transfer Capacitance	C_{rss}		--	58	--	pF
Gate Resistance	Rg	V_{DS}=0V,V_{GS}=0V,f=1MHz	--	1	--	Ω
Total Gate Charge	Q_g	V_{DS}=30V,I_D=3.5A, V_{GS}=10V	--	25	--	nC
Gate-Source Charge	Q_{gs}		--	4.5	--	nC
Gate-Drain Charge	Q_{gd}		--	6.5	--	nC
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=30V, I_D=3.5A, V_{GS}=10V,R_{GEN}=1.8Ω	--	7.5	--	nS
Turn-on Rise Time	t_r		--	21	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	16	--	nS
Turn-off Fall Time	t_f		--	23.5	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage Note3	V_{SD}	V_{GS}=0V,I_S=7A	--	--	1.2	V
Diode Forward Current Note2	I_S	--	--	--	7	A

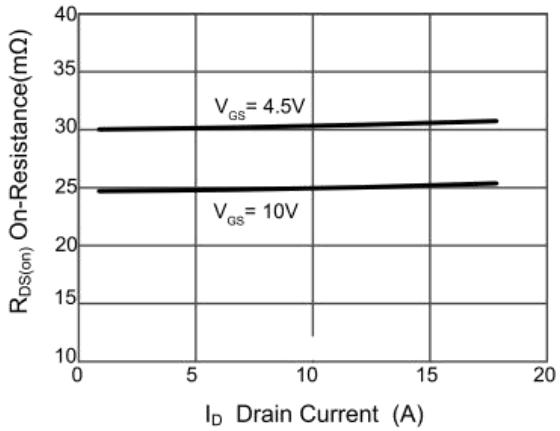
Notes:

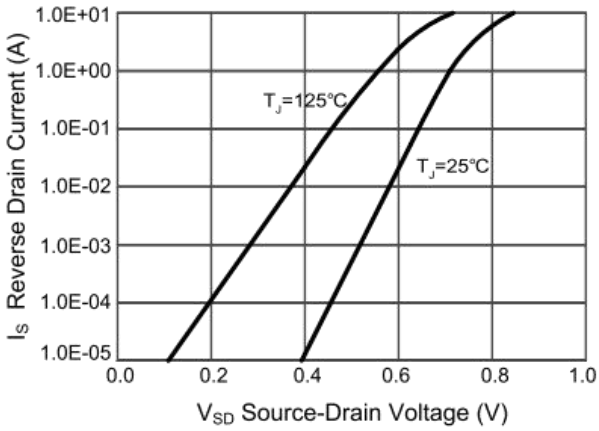
- Repetitive Rating: Pulse width limited by maximum junction temperature.
- The test condition is V_{DD}=30V,V_{GS}=10V,L=0.5mH,I_{AS}=9.3A, R_G=25Ω,T_J=25℃.
- Surface Mounted on FR4 Board, t ≤ 10 sec.
- Pulse Test: Pulse width≤300 μs, duty cycle≤2%.

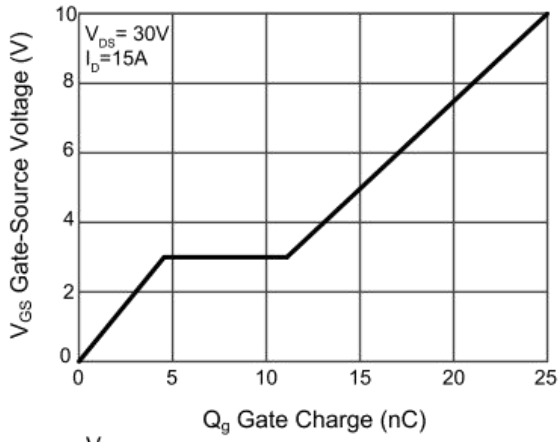
Typical Characteristics Curves

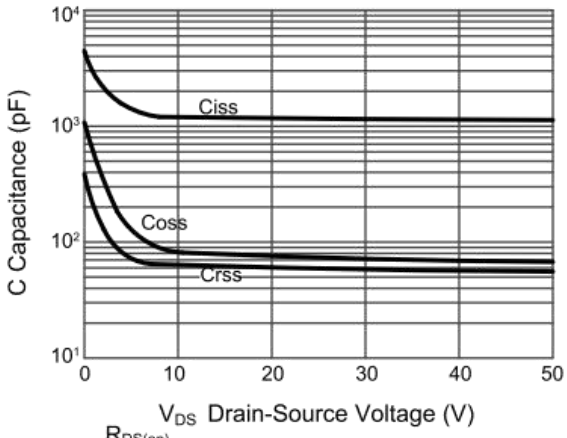


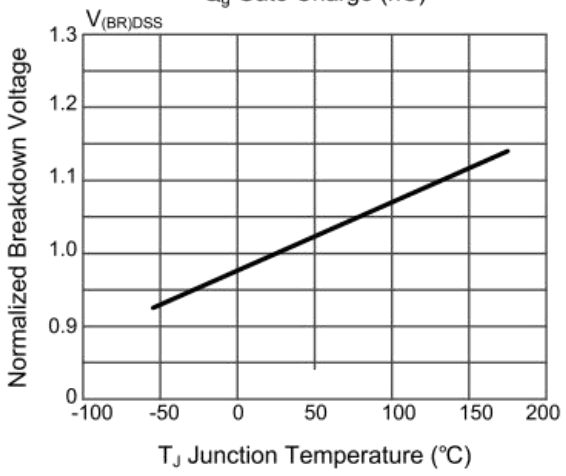


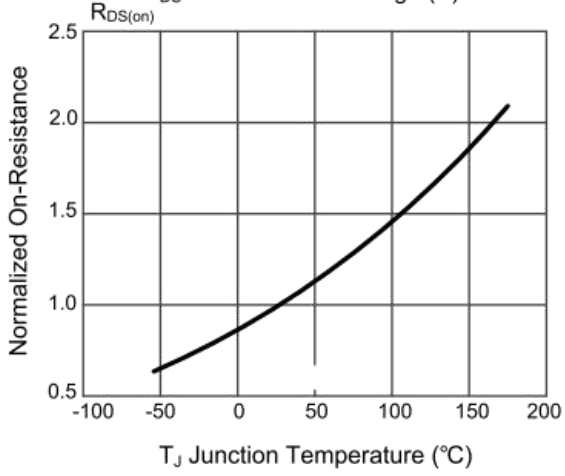


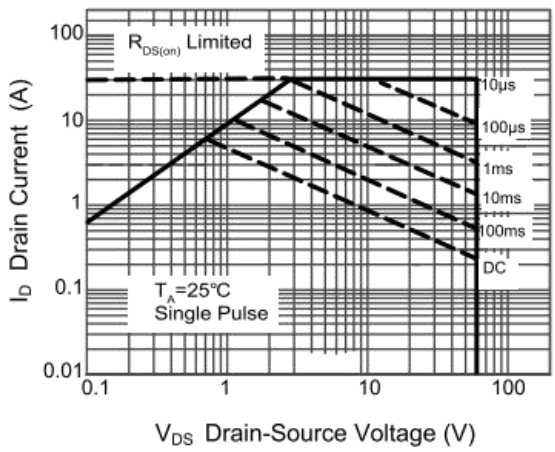




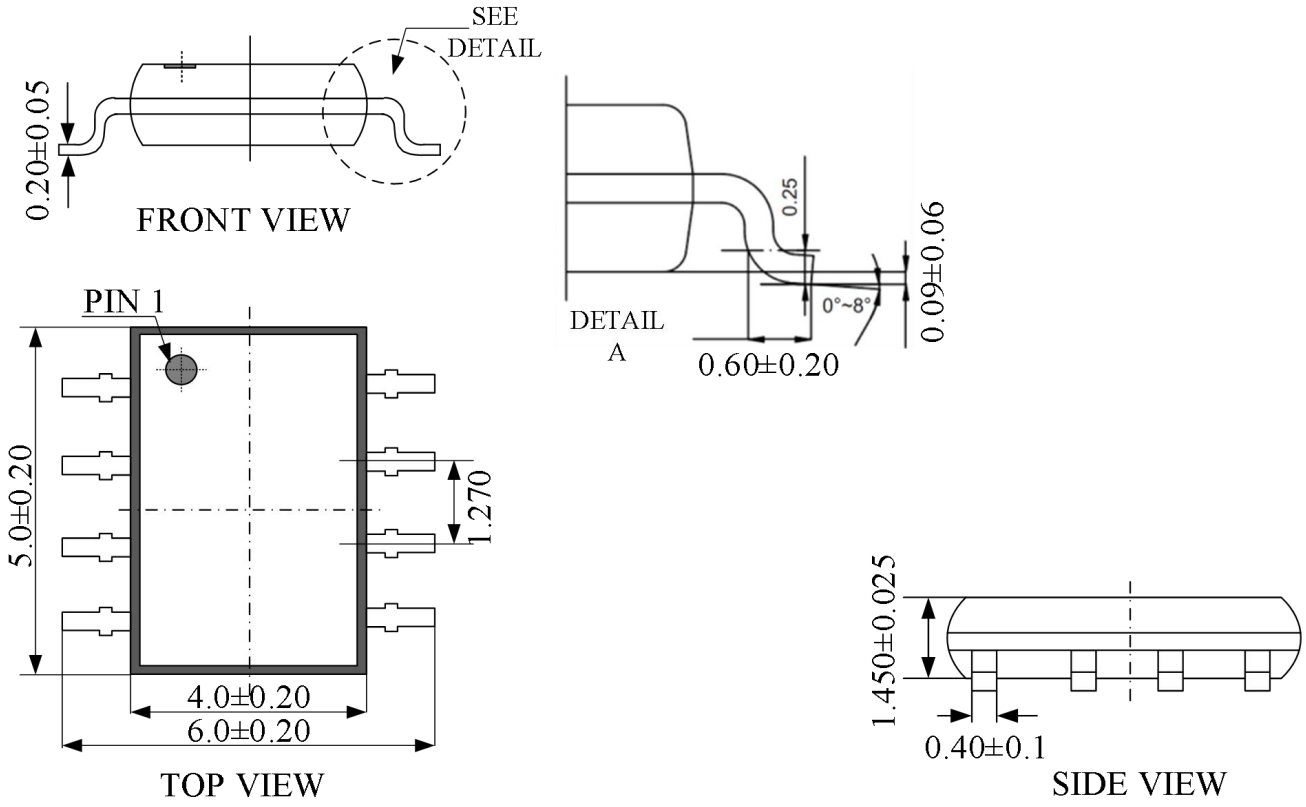








Outline Drawing – SOP-8(Dimensions in mm)

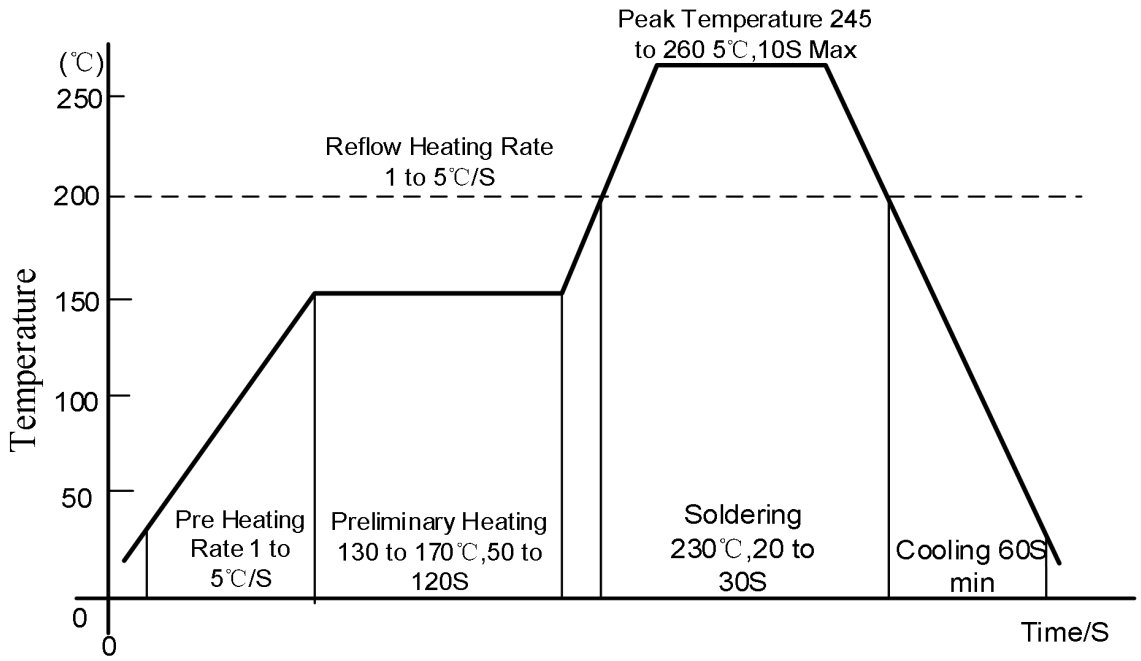


Package Information

Package Type	Description	Quantity（pcs）	Standard
SOP-8	Reel -13″ tape	4000	EIA-481

Conditions of Soldering and Storage

- **Recommended condition of reflow soldering**



Recommended peak temperature is over 245° C. If peak temperature is below 245° C, you may adjust the following parameters:

● Time length of peak temperature (longer)
● Time length of soldering (longer)
● Thickness of solder paste (thicker)

- **Conditions of hand soldering**

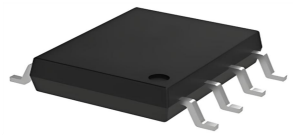
● Temperature: 300°C
● Time: 3s max
● Times: one time

- **Storage conditions**

● Temperature: 5 to 40° C
● Humidity：30 to 80% RH
● Recommended period：One year after manufacturing

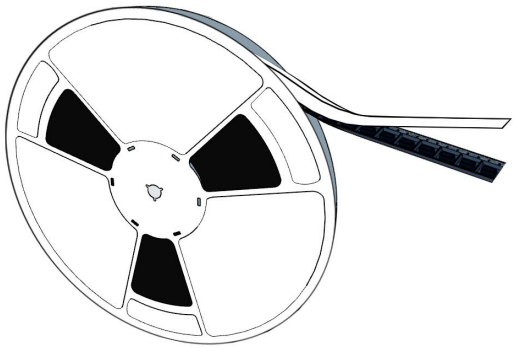
Package Specifications

- **The method of packaging**



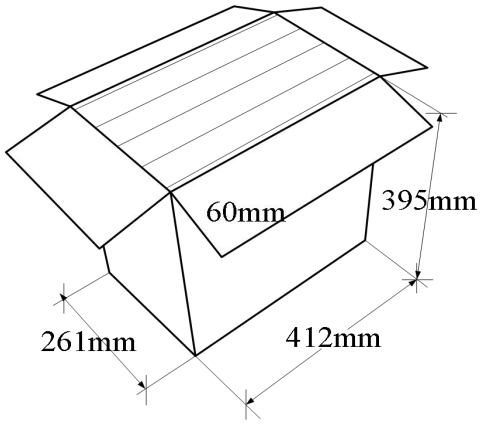
SOP-8

4,000 pcs per reel

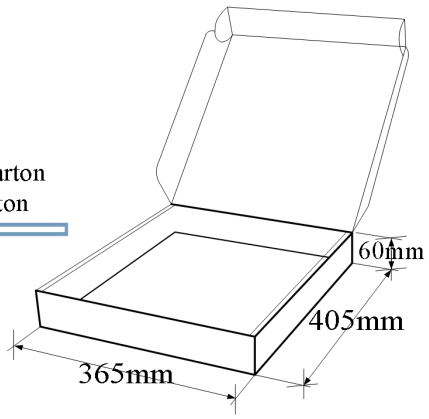


12,000 pcs per box

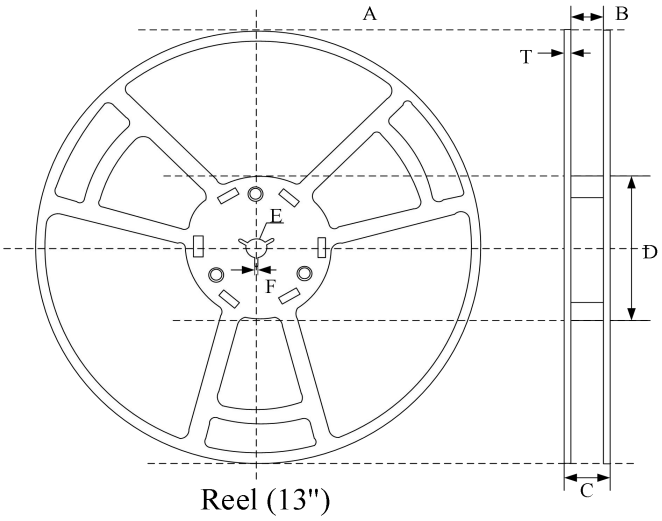
3 reels per box



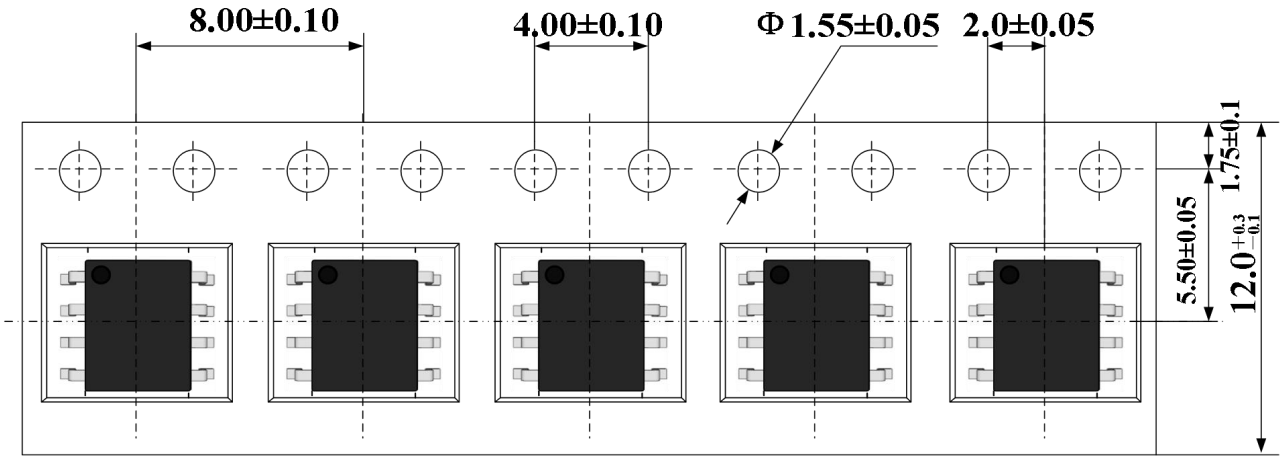
48,000 pcs per carton
4 boxes per carton



Embossed tape and reel data



symbol	Value(unit:mm)
A	φ330±1
B	12.7±0.5
C	16.5±0.3
D	φ99.5±0.5
E	φ13.6±0.3
F	2.8±0.3
T	1.9±0.2



Contact Information

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For additional information, please contact your local Sales Representative.

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