



PJM06C40PA

N and P-Channel Complementary Power MOSFET

Product Summary

- **N-Channel**
- $V_{DS} = 40V, I_D = 6.5A$
- $R_{DS(on)} < 40m\Omega @ V_{GS} = 10V$
- $R_{DS(on)} < 60m\Omega @ V_{GS} = 4.5V$
- **P-Channel**
- $V_{DS} = -40V, I_D = -6A$
- $R_{DS(on)} < 75m\Omega @ V_{GS} = -10V$
- $R_{DS(on)} < 100m\Omega @ V_{GS} = -4.5V$

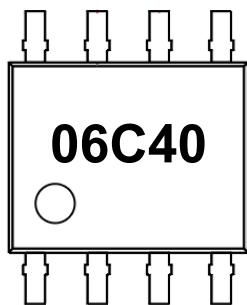
Features

- Advanced Trench Technology
- 100% Avalanche Tested
- RoHS and Reach Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 3

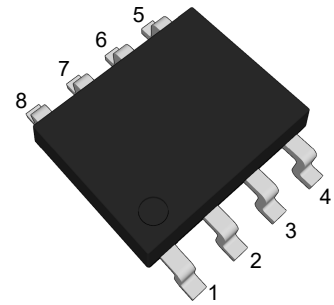
Application

- Power Management

Marking Code



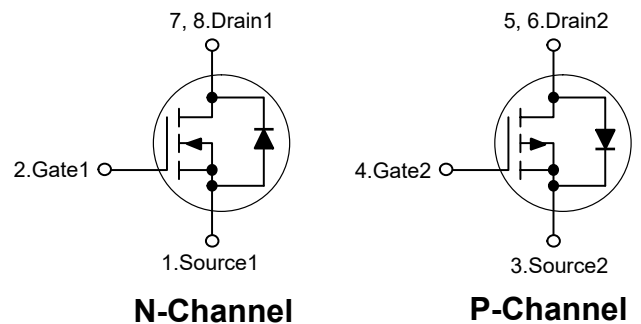
SOP-8



(Top View)

Pin	Description	Pin	Description
1	Source1	4	Gate2
2	Gate1	5,6	Drain2
3	Source2	7,8	Drain1

Schematic Diagram





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Absolute Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	V_{DS}	40	-40	V
Gate-Source Voltage	V_{GS}	± 20		V
Drain Current-Continuous	I_D	6.5	-6	A
Drain Current-Pulsed ^{Note1}	I_{DM}	23	-22	A
Maximum Power Dissipation	P_D	1.67	1.67	W
Junction Temperature	T_J	150		°C
Storage Temperature Range	T_{STG}	-55 to +150		°C

Thermal Characteristics

Thermal Resistance,Junction-to-Ambient ^{Note2}	$R_{\theta JA}$	75	°C/W
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Electrical Characteristics

($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	40	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=40V, V_{GS}=0V$	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	--	--	± 100	nA
Gate Threshold Voltage ^{Note3}	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	--	2.5	V
Drain-Source On-Resistance ^{Note3}	$R_{DS(on)}$	$V_{GS}=10V, I_D=4A$	--	--	40	m Ω
		$V_{GS}=4.5V, I_D=3A$	--	--	60	m Ω
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V, f=1MHz$	--	452	--	pF
Output Capacitance	C_{oss}		--	51	--	pF
Reverse Transfer Capacitance	C_{rss}		--	38	--	pF
Total Gate Charge	Q_g	$V_{DS}=15V, I_D=3A, V_{GS}=4.5V$	--	5	--	nC
Gate-Source Charge	Q_{gs}		--	1.54	--	nC
Gate-Drain Charge	Q_{gd}		--	1.84	--	nC
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=15V, I_D=1A, V_{GS}=10V, R_{GEN}=3.3\Omega$	--	7.8	--	nS
Turn-on Rise Time	t_r		--	2.1	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	29	--	nS
Turn-off Fall Time	t_f		--	2.1	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage ^{Note3}	V_{SD}	$V_{GS}=0V, I_S=6.5A$	--	--	1.2	V
Diode Forward Current ^{Note2}	I_S		--	--	6.5	A

Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. Surface Mounted on FR4 Board, $t \leq 10$ sec.

3. Pulse Test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$



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Electrical Characteristics

(T_a=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	-V _{(BR)DSS}	V _{GS} =0V, I _D =-250μA	40	--	--	V
Zero Gate Voltage Drain Current	-I _{DSS}	V _{DS} =-40V, V _{GS} =0V	--	--	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
Gate Threshold Voltage ^{Note3}	-V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	1	--	2.5	V
Drain-Source On-Resistance ^{Note3}	R _{DS(on)}	V _{GS} =-10V, I _D =-3A	--	--	75	mΩ
		V _{GS} =-4.5V, I _D =-2A	--	--	100	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, f=1MHz	--	620	--	pF
Output Capacitance	C _{oss}		--	65	--	pF
Reverse Transfer Capacitance	C _{rss}		--	53	--	pF
Total Gate Charge	Q _g	V _{DS} =-32V, I _D =-3A, V _{GS} =-4.5V	--	6.4	--	nC
Gate-Source Charge	Q _{gs}		--	2.1	--	nC
Gate-Drain Charge	Q _{gd}		--	2.5	--	nC
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =-20V, I _D =-3A, V _{GS} =-4.5V, R _{GEN} =3.3Ω	--	4.2	--	nS
Turn-on Rise Time	t _r		--	23	--	nS
Turn-off Delay Time	t _{d(off)}		--	26.8	--	nS
Turn-off Fall Time	t _f		--	20.6	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage ^{Note3}	-V _{SD}	V _{GS} =0V, I _S =-6A	--	--	1.2	V
Diode Forward Current ^{Note2}	-I _S		--	--	6	A

Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. Surface Mounted on FR4 Board, t ≤ 10 sec.

3. Pulse Test: Pulse width≤300μs, duty cycle≤2%

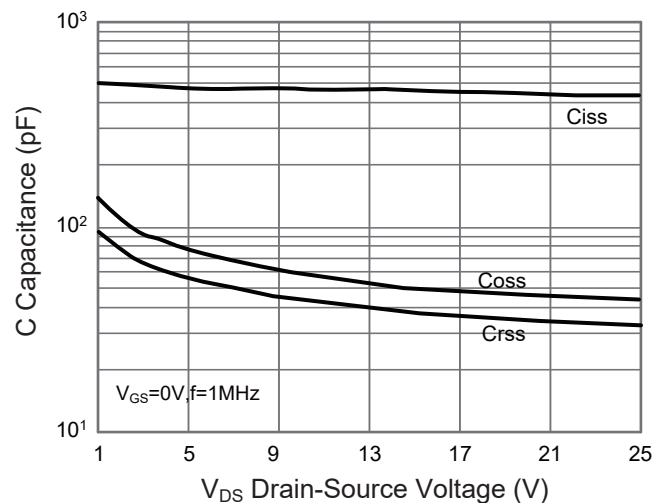
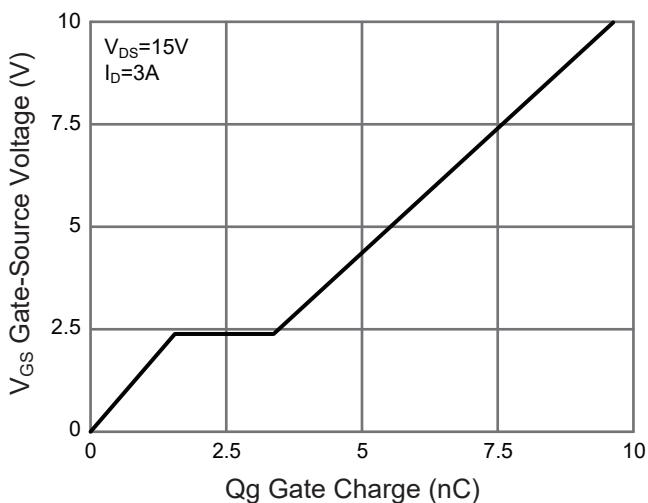
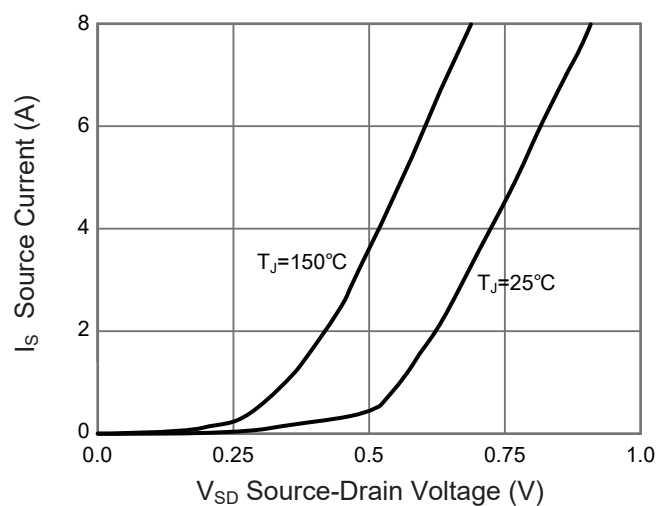
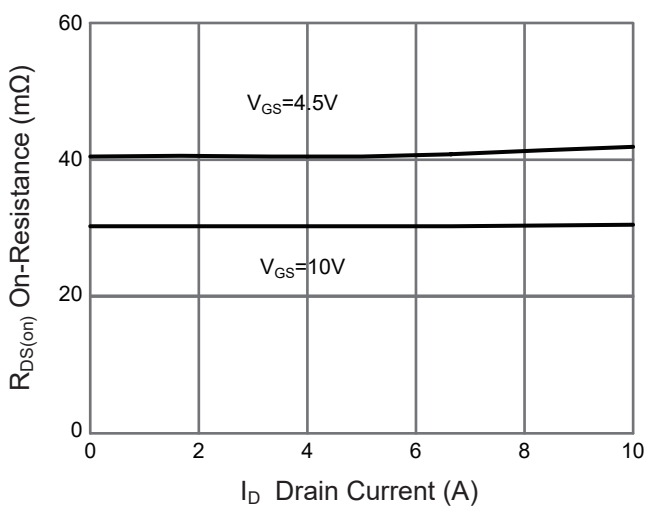
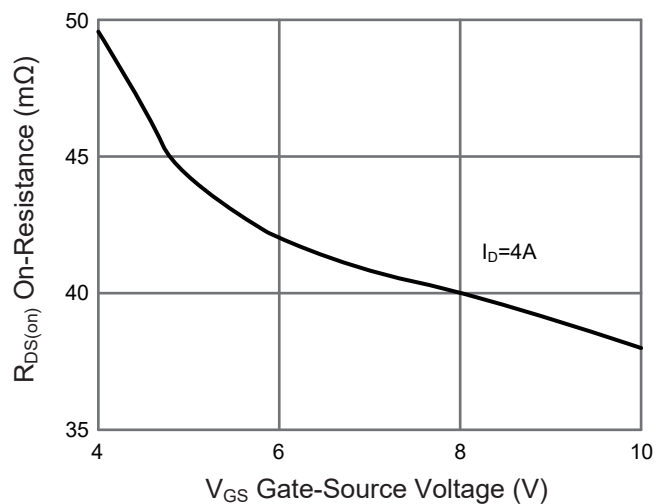
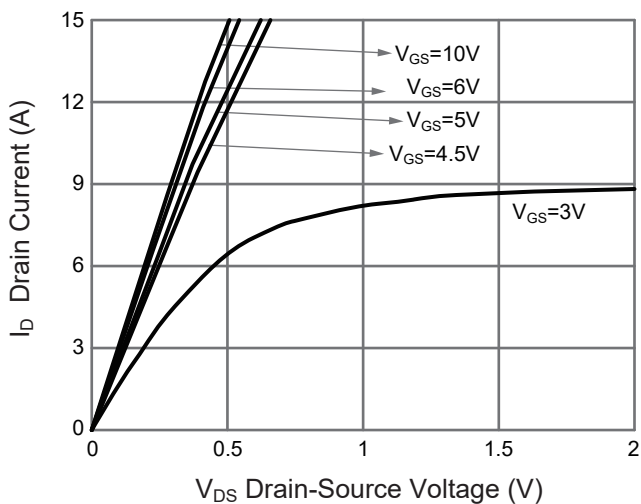


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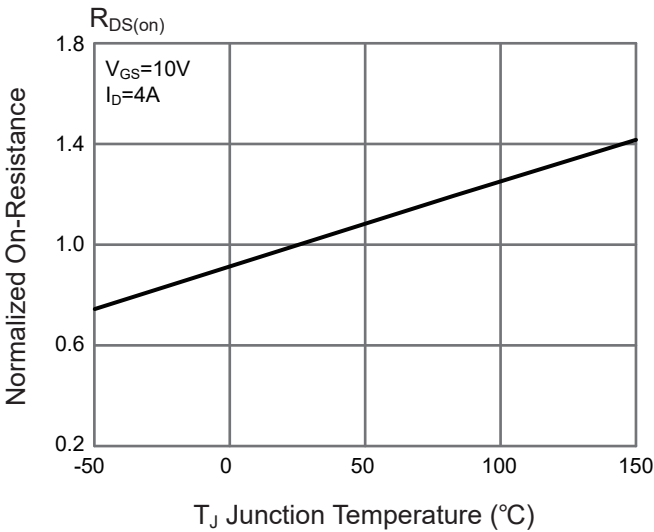
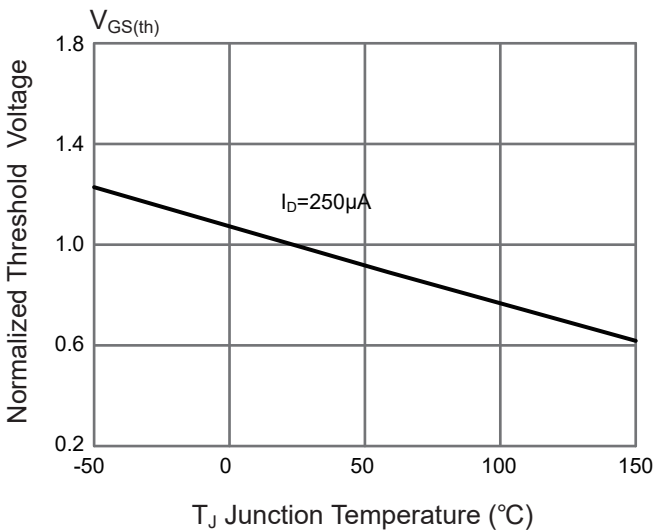
Typical Characteristics Curves





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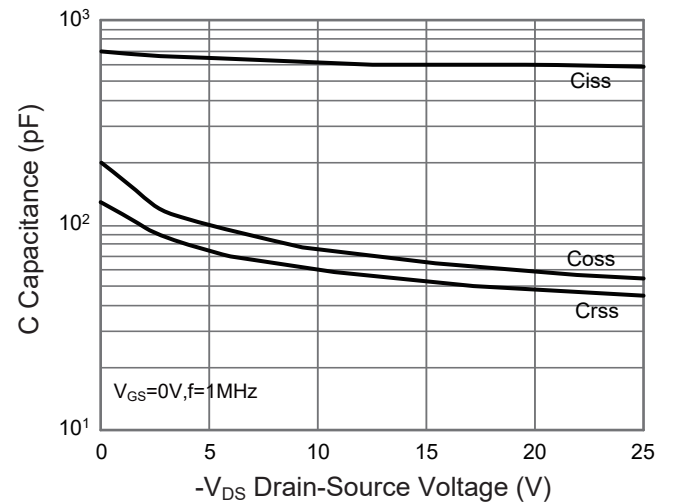
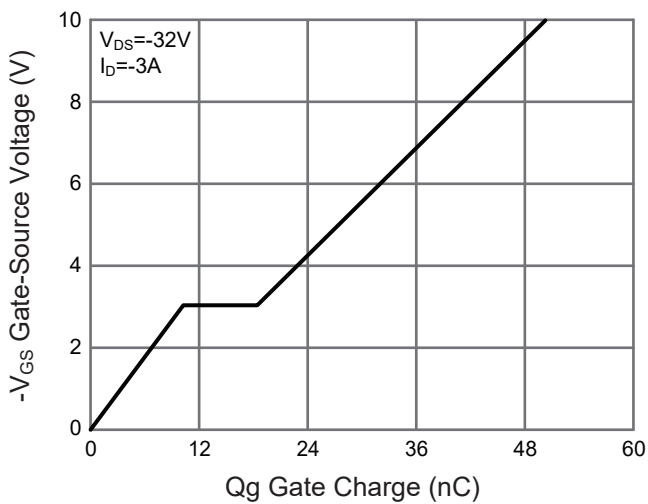
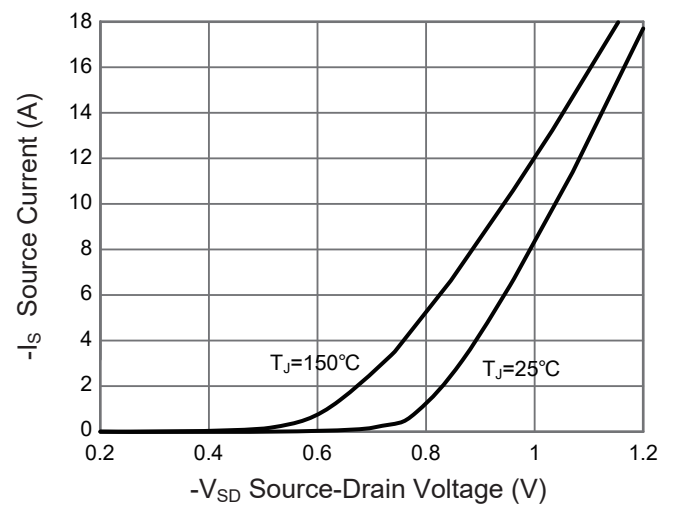
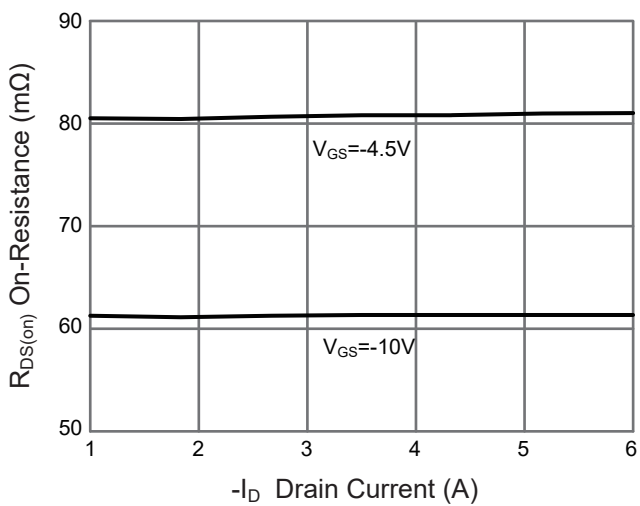
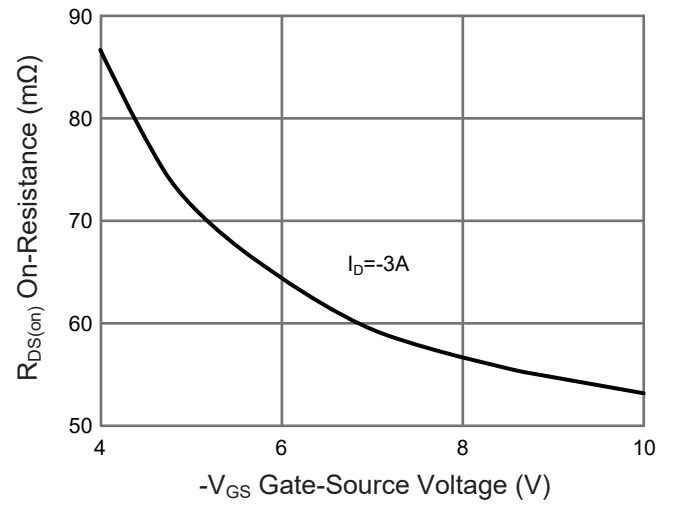
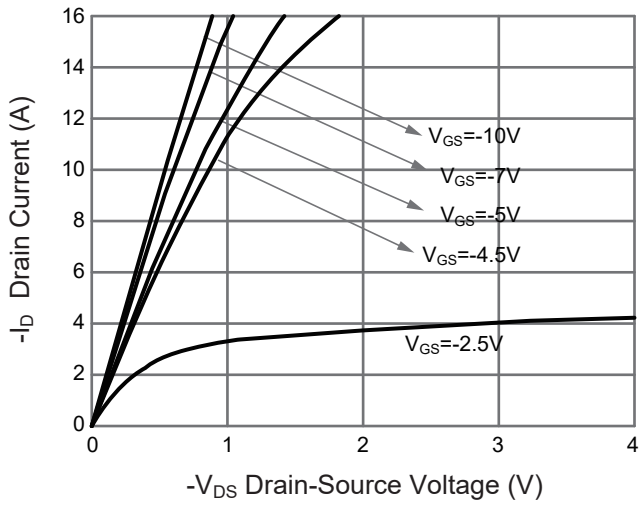


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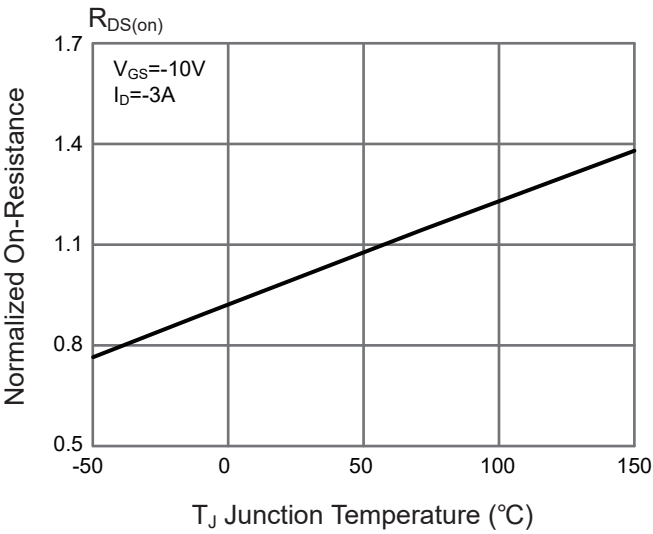
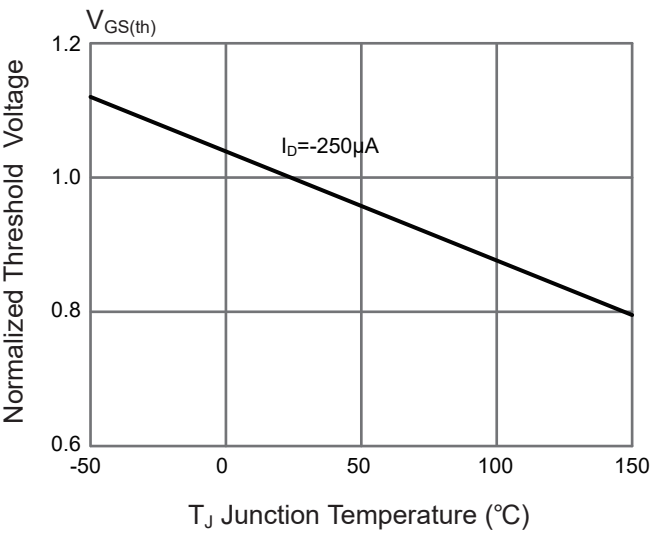
Typical Characteristics Curves





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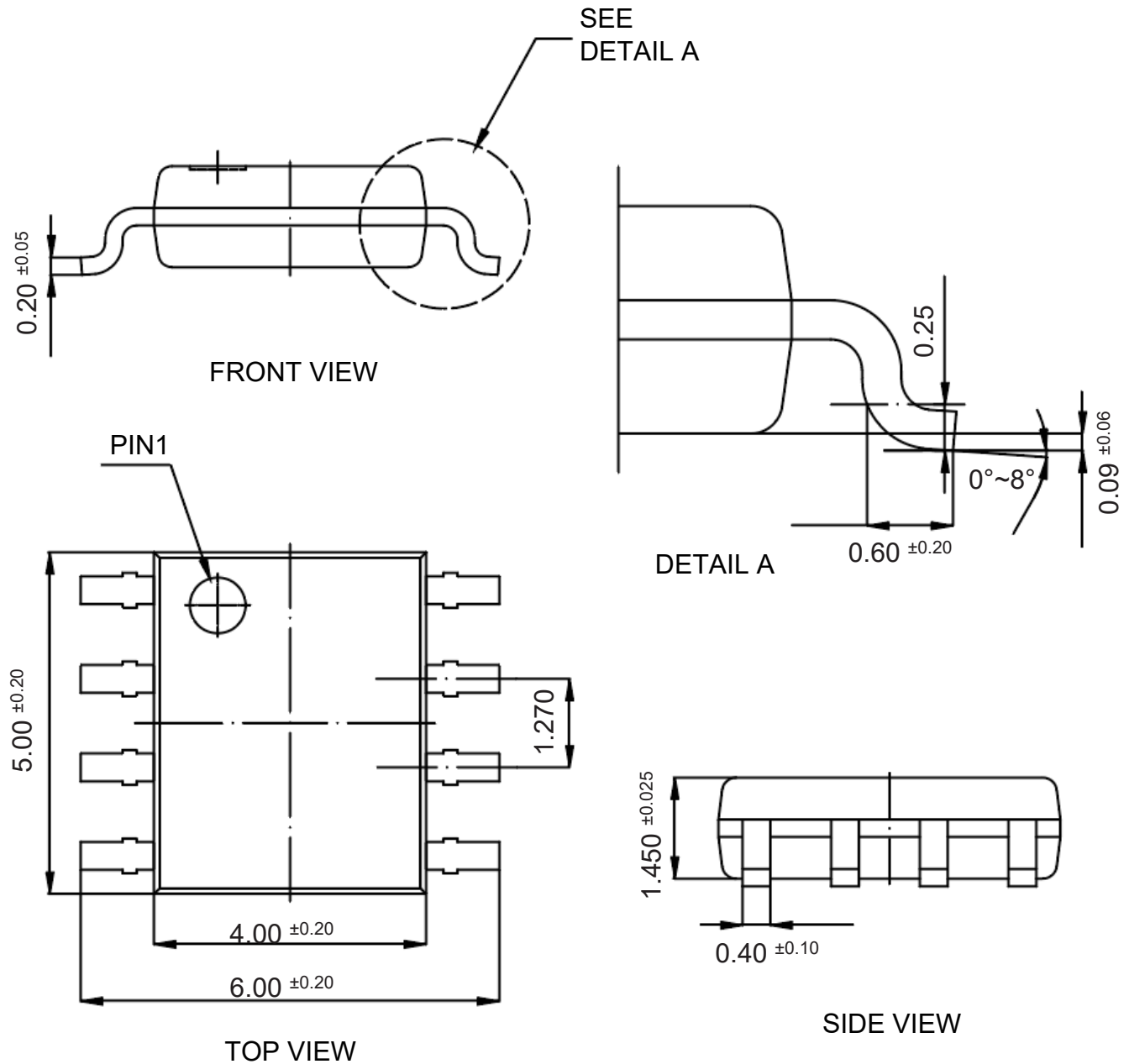
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Package Outline

SOP-8

Dimensions in mm



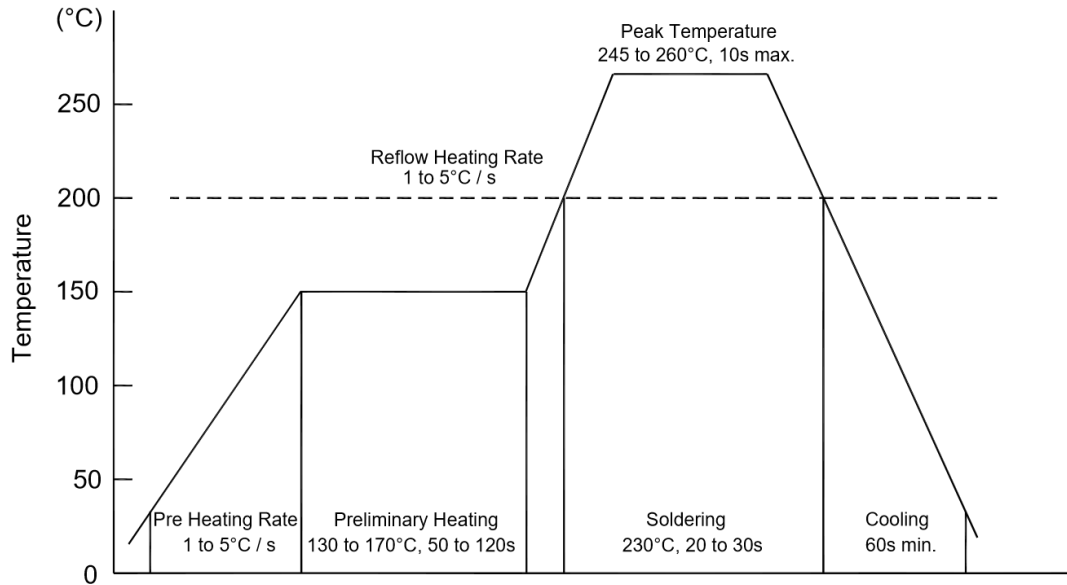
Ordering Information

Device	Package	Shipping
PJM06C40PA	SOP-8	4,000PCS/Reel&13inches



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

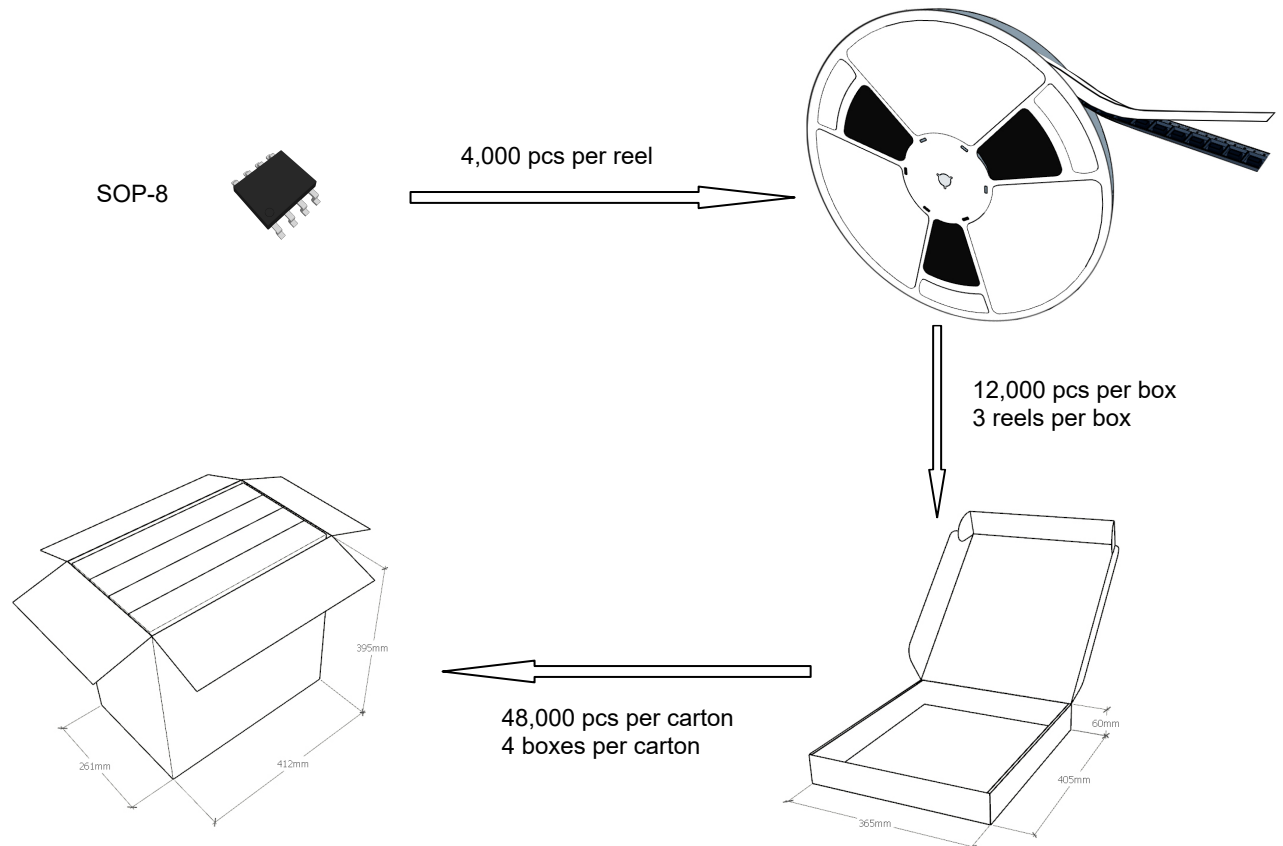


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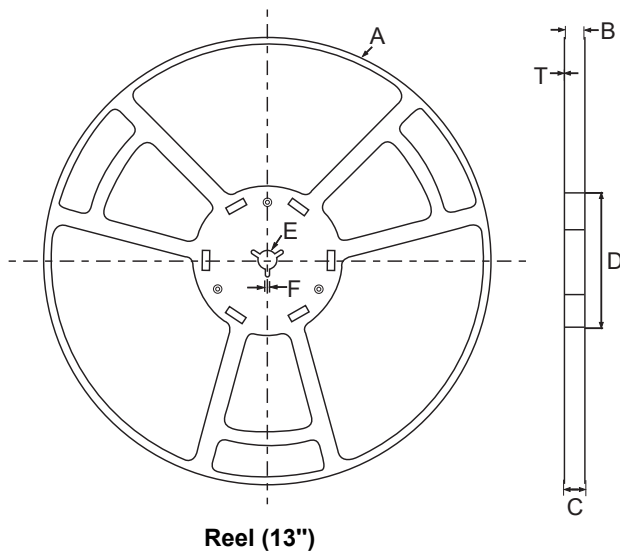
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Package Specifications

- The method of packaging



◆ Embossed tape and reel data



symbol	Value(unit:mm)
A	$\phi 330 \pm 1$
B	12.7 ± 0.5
C	1.9 ± 0.2
D	$\phi 99.5 \pm 0.5$
E	$\phi 13.6 \pm 0.3$
F	2.8 ± 0.3
T	1.9 ± 0.2

