



PJM10C30PA

N and P-Channel Complementary Power MOSFET

Product Summary

- **N-Channel**
- $V_{DS} = 30V, I_D = 12A$
- $R_{DS(on)} < 15m\Omega @ V_{GS} = 10V$
- $R_{DS(on)} < 20m\Omega @ V_{GS} = 4.5V$
- **P-Channel**
- $V_{DS} = -30V, I_D = -9A$
- $R_{DS(on)} < 25m\Omega @ V_{GS} = -10V$
- $R_{DS(on)} < 40m\Omega @ V_{GS} = -4.5V$

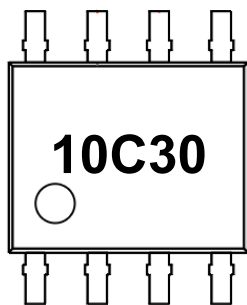
Features

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

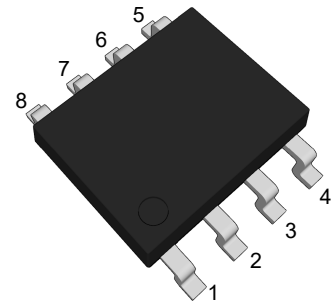
Application

- Power Management

Marking Code



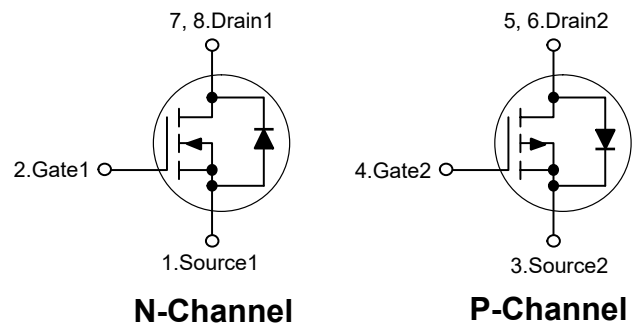
SOP-8



(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}	30	-30	V
Gate-Source Voltage	V_{GS}	± 20		V
Drain Current-Continuous	I_D	12	-9	A
Drain Current-Pulsed ^{Note1}	I_{DM}	36	-30	A
Single Pulsed Avalanche Energy ^{Note2}	E_{AS}	25	42	mJ
Maximum Power Dissipation	P_D	2		W
Junction Temperature	T_J	150		°C
Storage Temperature Range	T_{STG}	-55 to +150		°C

Thermal Characteristics

Thermal Resistance,Junction-to-Ambient ^{Note3}	$R_{\theta JA}$	62.5	°C/W
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N-Channel

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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	--	--	± 100	nA
Gate Threshold Voltage ^{Note4}	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.6	2.5	V
Drain-Source On-Resistance ^{Note4}	$R_{DS(on)}$	$V_{GS}=10V, I_D=8A$	--	9.8	15	m Ω
		$V_{GS}=4.5V, I_D=6A$	--	15.5	20	m Ω
Forward Transconductance ^{Note4}	g_{FS}	$V_{DS}=5V, I_D=2A$	--	7	--	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V, f=1MHz$	--	830	--	pF
Output Capacitance	C_{oss}		--	105	--	pF
Reverse Transfer Capacitance	C_{rss}		--	86	--	pF
Gate Resistance	R_G	$V_{DS}=0V, V_{GS}=0V, f=1MHz$	--	1	--	Ω
Total Gate Charge	Q_g	$V_{DS}=15V, I_D=15A, V_{GS}=10V$	--	16	--	nC
Gate-Source Charge	Q_{gs}		--	3.6	--	nC
Gate-Drain Charge	Q_{gd}		--	3.4	--	nC
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=15V, I_D=15A, V_{GS}=10V, R_{GEN}=3\Omega$	--	6	--	nS
Turn-on Rise Time	t_r		--	15	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	17	--	nS
Turn-off Fall Time	t_f		--	5	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage ^{Note4}	V_{SD}	$V_{GS}=0V, I_S=12A$	--	--	1.2	V
Diode Forward Current ^{Note3}	I_S		--	--	12	A

Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. EAS Condition: $T_J=25^{\circ}\text{C}$, $V_{DD}=30V$, $V_G=10V$, $R_G=25\Omega$, $L=0.5\text{mH}$, $I_{AS}=10A$
3. Surface Mounted on FR4 Board, $t \leq 10$ sec.
4. Pulse Test: Pulse width $\leq 300\mu\text{s}$, 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	30	--	--	V
Zero Gate Voltage Drain Current	-I _{DSS}	V _{DS} =-30V, V _{GS} =0V	--	--	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
Gate Threshold Voltage ^{Note4}	-V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	1	1.65	3	V
Drain-Source On-Resistance ^{Note4}	R _{DS(on)}	V _{GS} =-10V, I _D =-8A	--	18.5	25	mΩ
		V _{GS} =-4.5V, I _D =-6A	--	27.5	40	mΩ
Forward Transconductance ^{Note4}	g _{FS}	V _{DS} =-5V, I _D =-2A	--	8	--	S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, f=1MHz	--	972	--	pF
Output Capacitance	C _{oss}		--	142	--	pF
Reverse Transfer Capacitance	C _{rss}		--	115	--	pF
Gate Resistance	R _G	V _{DS} =0V, V _{GS} =0V, f=1MHz	--	10	--	Ω
Total Gate Charge	Q _g	V _{DS} =-15V, I _D =-8A, V _{GS} =-10V	--	52	--	nC
Gate-Source Charge	Q _{gs}		--	9.8	--	nC
Gate-Drain Charge	Q _{gd}		--	8.3	--	nC
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =-15V, I _D =-1A, V _{GS} =-10V, R _{GEN} =6Ω	--	13	--	nS
Turn-on Rise Time	t _r		--	15	--	nS
Turn-off Delay Time	t _{d(off)}		--	198	--	nS
Turn-off Fall Time	t _f		--	98	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage ^{Note4}	-V _{SD}	V _{GS} =0V, I _S =-9A	--	--	1.2	V
Diode Forward Current ^{Note3}	-I _S		--	--	9	A

Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. EAS Condition: T_J=25°C, V_{DD}=-30V, V_G=-10V, R_G=25Ω, L=0.5mH, I_{AS}=-13A
3. Surface Mounted on FR4 Board, t ≤ 10 sec.
4. Pulse Test: Pulse width≤300μs, duty cycle≤2%

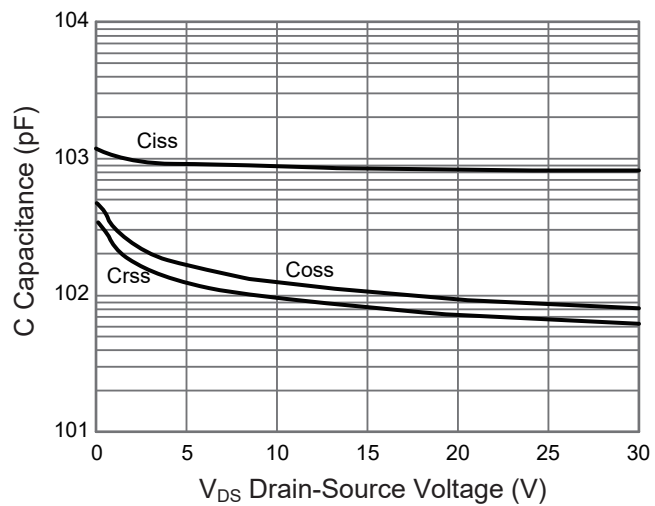
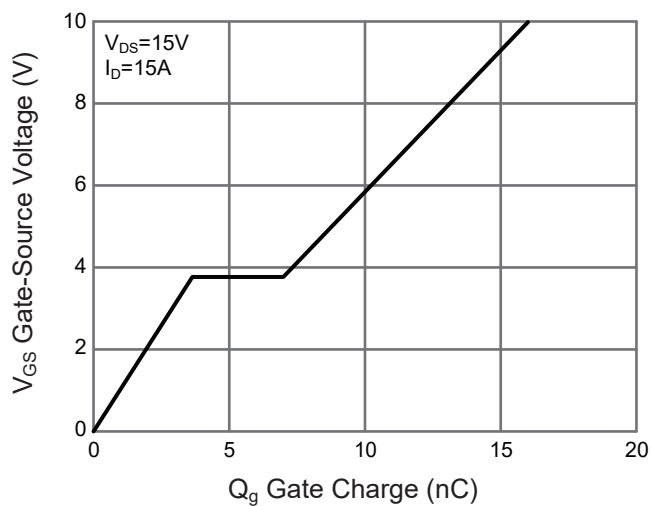
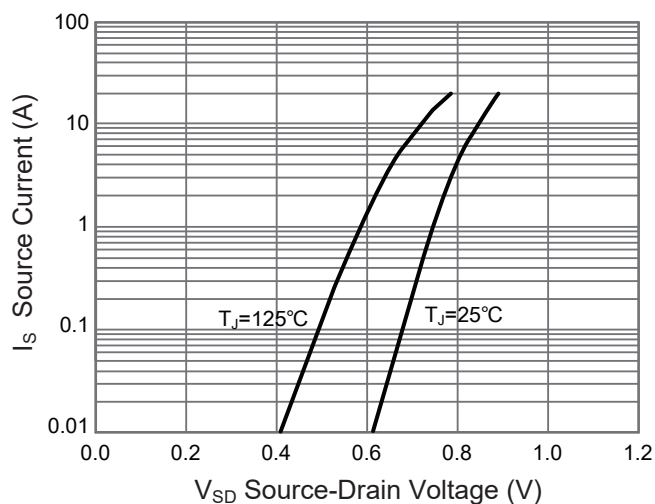
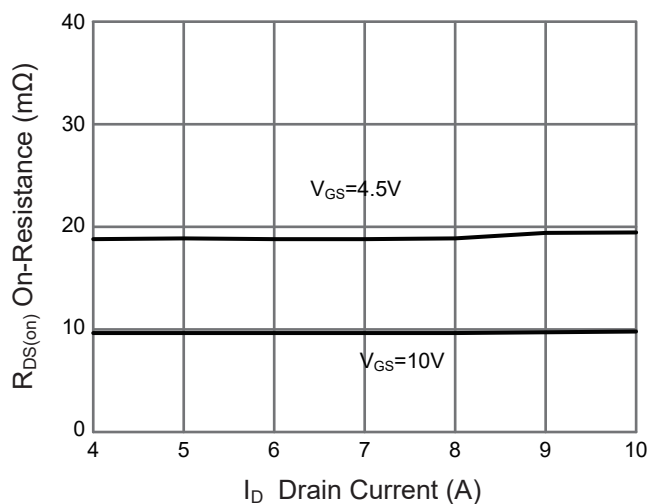
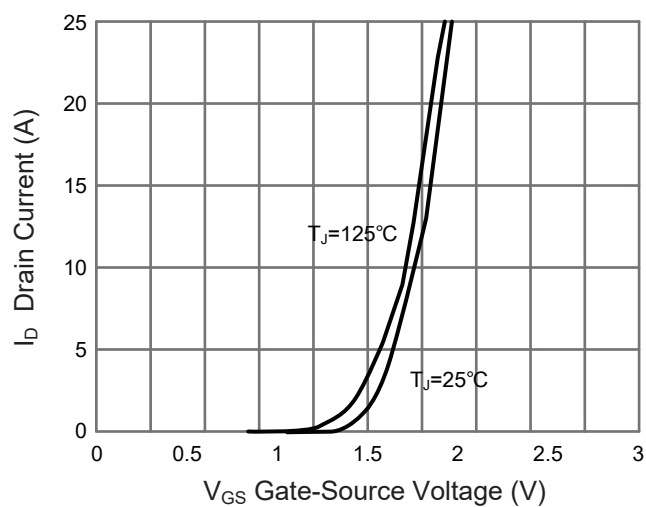
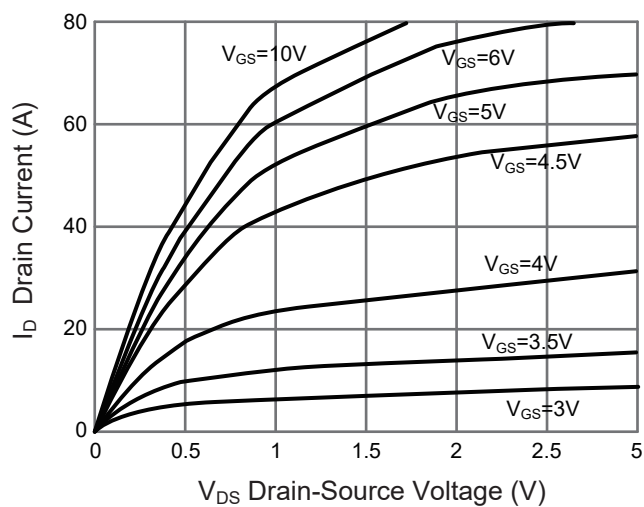


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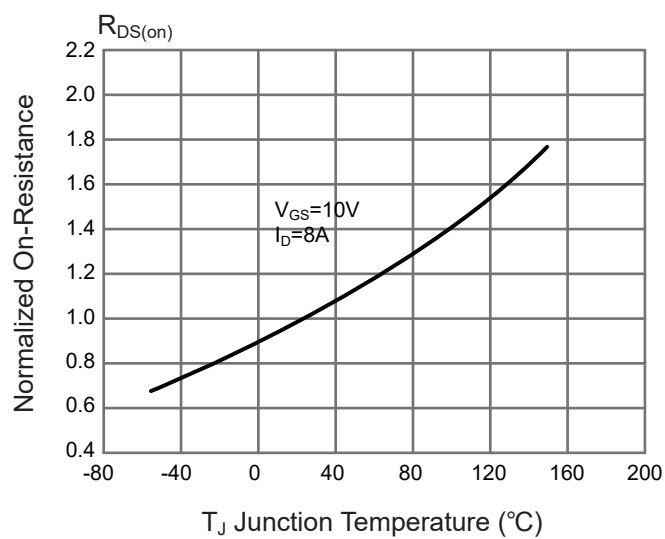
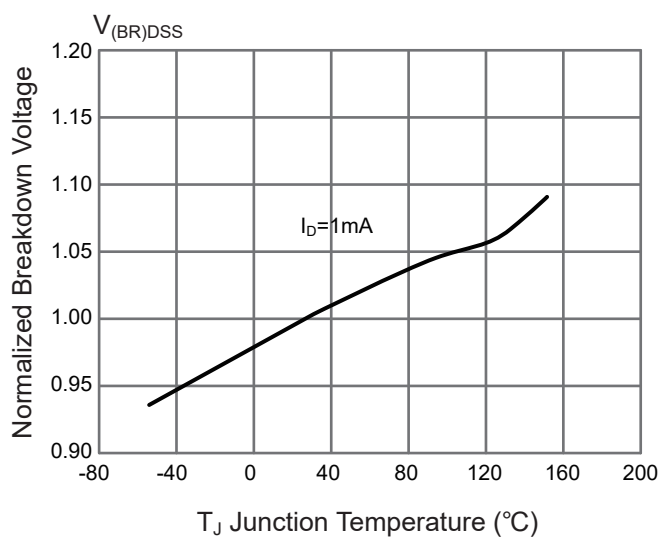
Typical Characteristics Curves





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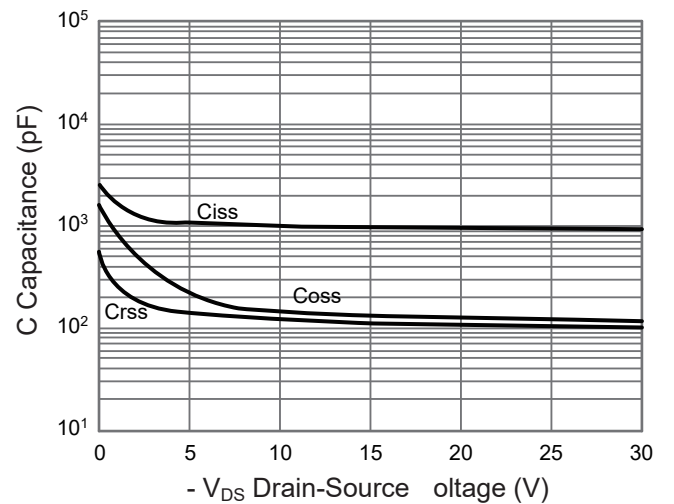
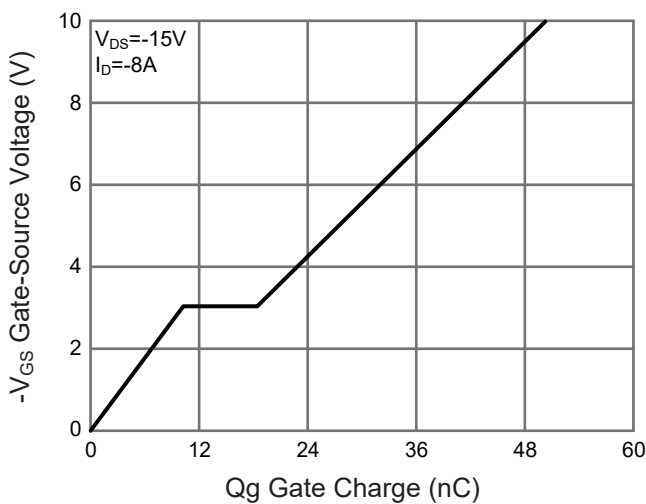
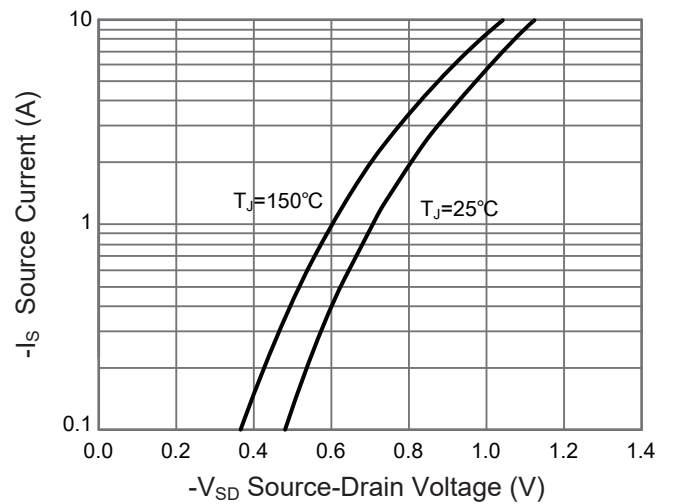
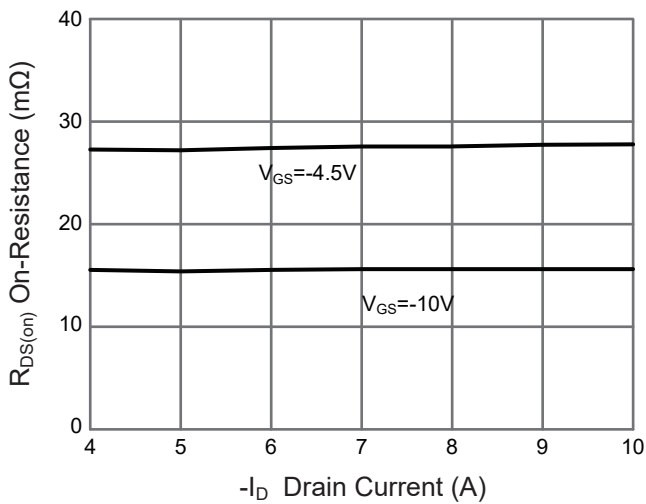
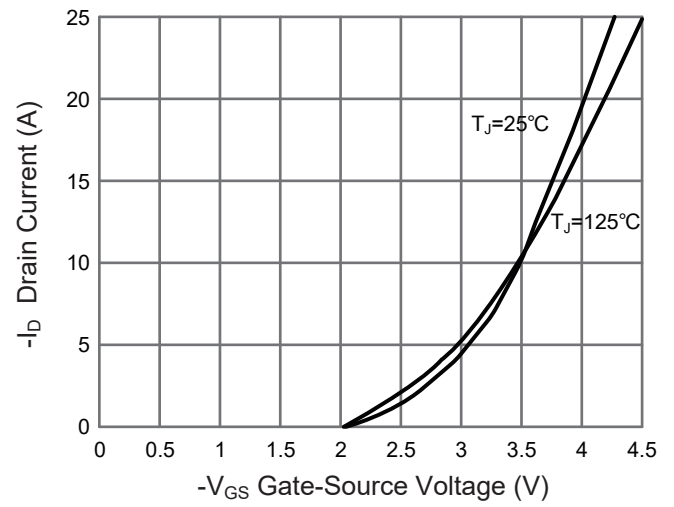
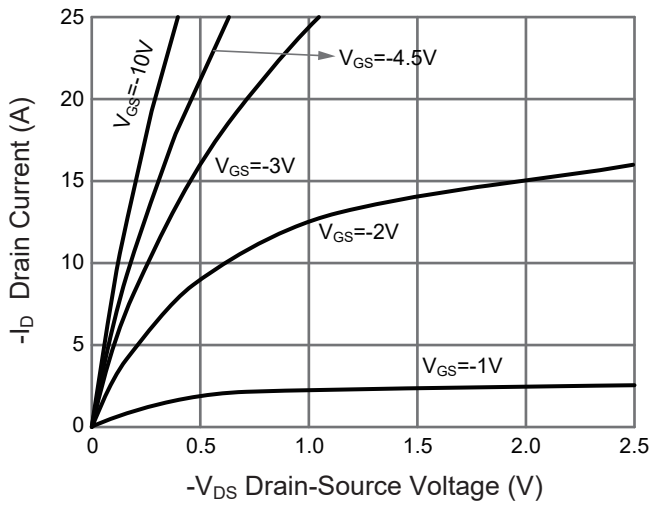


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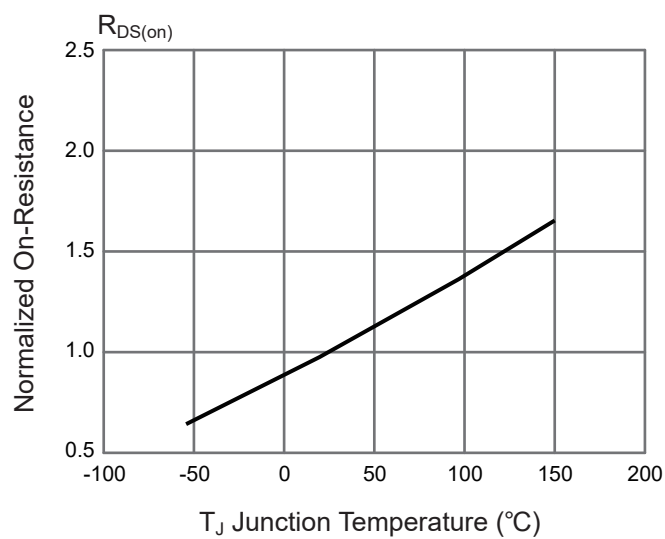
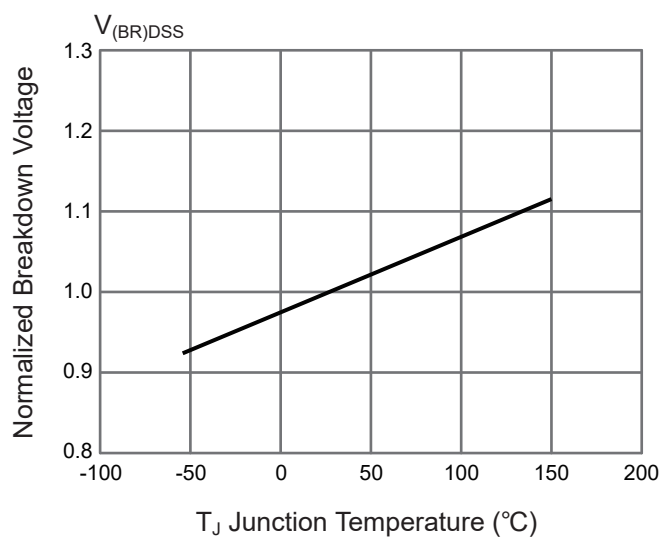
Typical Characteristics Curves





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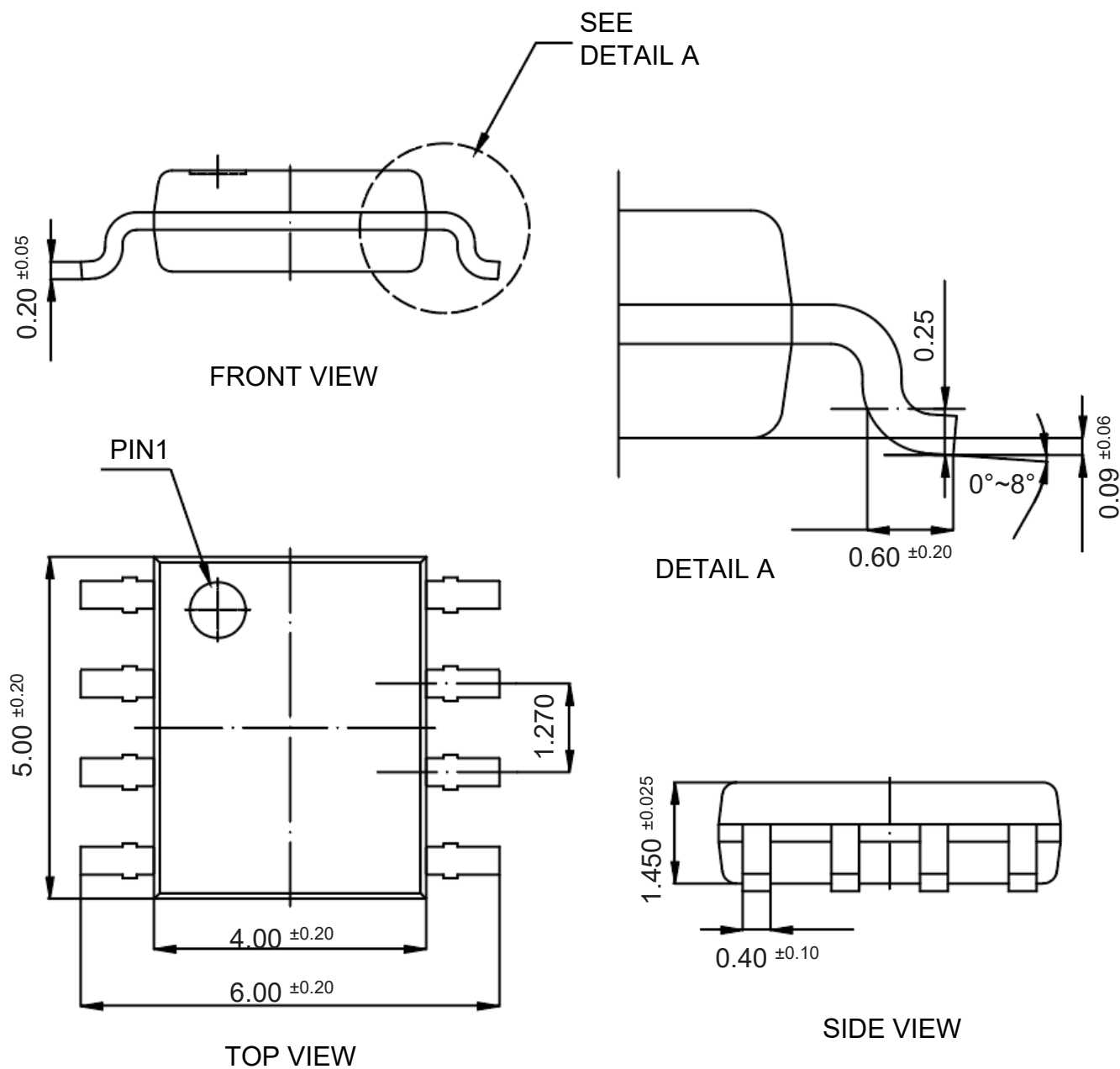
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Package Outline

SOP-8

Dimensions in mm



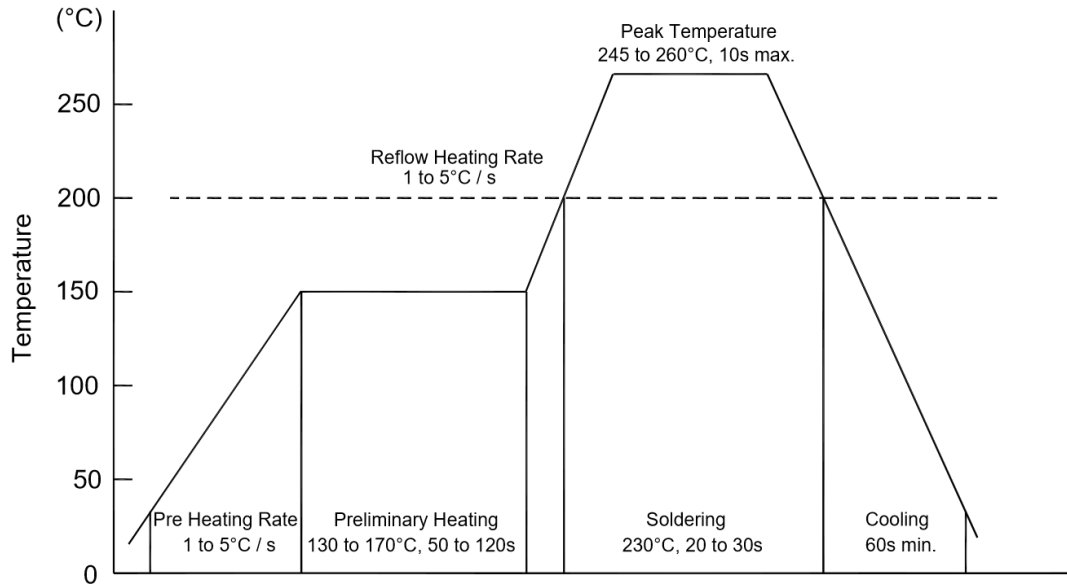
Ordering Information

Device	Package	Shipping
PJM10C30PA	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

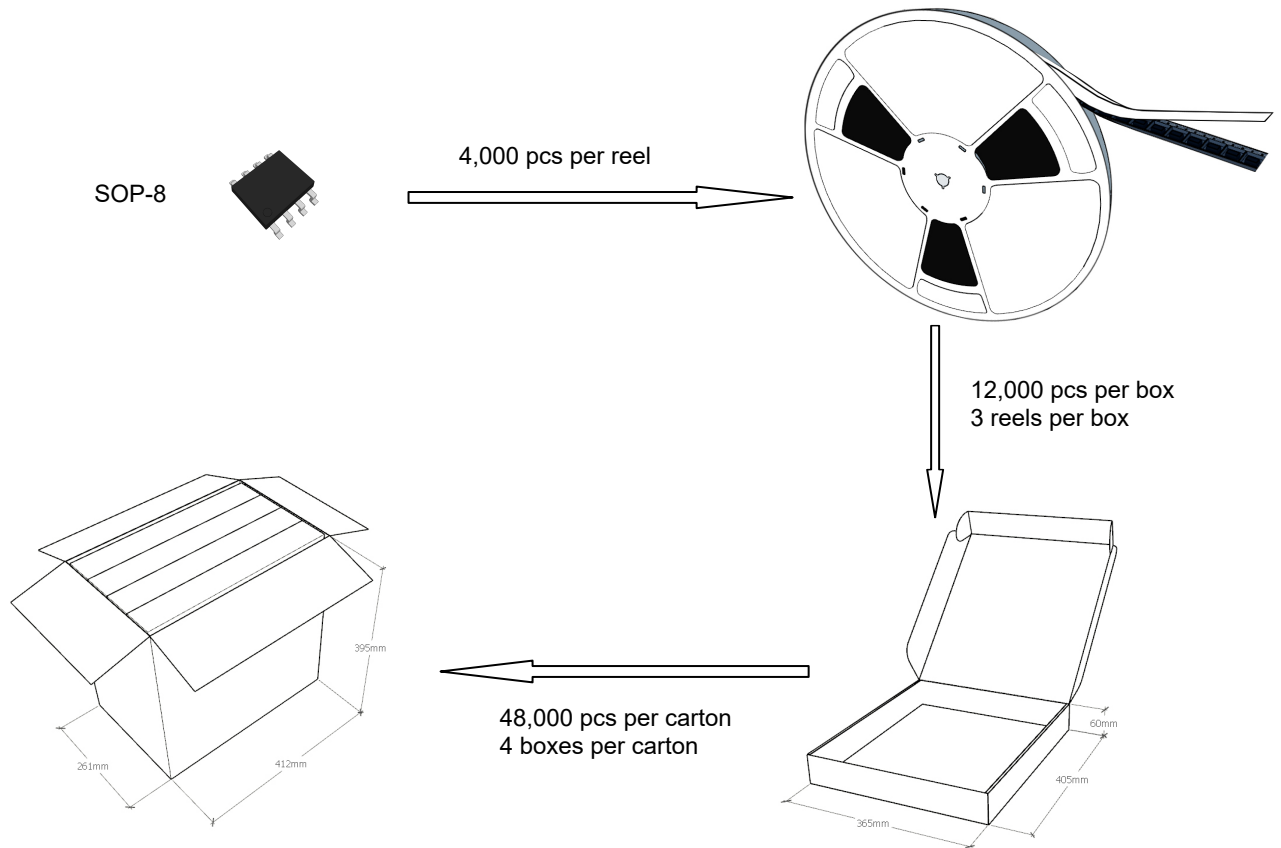


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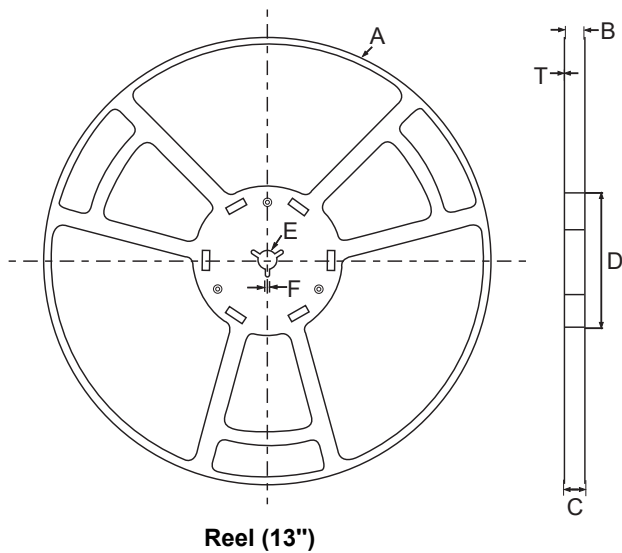
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Package Specifications

- The method of packaging



◆ Embossed tape and reel data



symbol	Value(unit:mm)
A	$\phi 330 \pm 1$
B	12.7 ± 0.5
C	16.5 ± 0.3
D	$\phi 99.5 \pm 0.5$
E	$\phi 13.6 \pm 0.3$
F	2.8 ± 0.3
T	1.9 ± 0.2

