

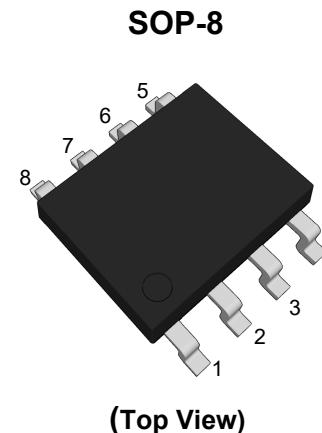


Product Summary

N-Channel

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

P-Channel



Features

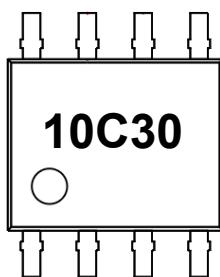
- Advanced Trench Technology
- 100% Avalanche Tested
- RoHS and Reach Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 3

Application

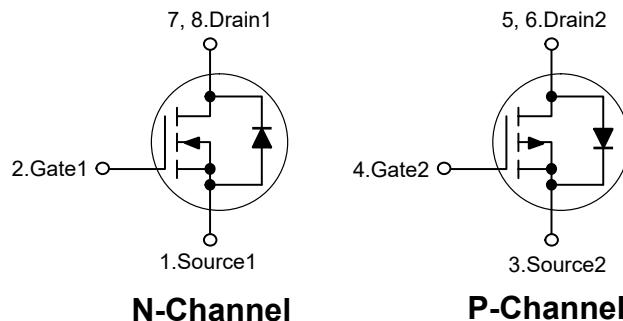
- Power Management

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

Marking Code



Schematic Diagram



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	27.5	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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PJM10C30PA

N and P-Channel Complementary Power MOSFET

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	$V_{(\text{BR})\text{DSS}}$	$V_{\text{GS}}=0\text{V}, I_{\text{D}}=250\mu\text{A}$	30	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{\text{DS}}=30\text{V}, V_{\text{GS}}=0\text{V}$	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{\text{GS}}=\pm 20\text{V}, V_{\text{DS}}=0\text{V}$	--	--	± 100	nA
Gate Threshold Voltage ^{Note4}	$V_{\text{GS}(\text{th})}$	$V_{\text{DS}}=V_{\text{GS}}, I_{\text{D}}=250\mu\text{A}$	1	1.6	2.5	V
Drain-Source On-Resistance ^{Note4}	$R_{\text{DS}(\text{on})}$	$V_{\text{GS}}=10\text{V}, I_{\text{D}}=8\text{A}$	--	10	15	$\text{m}\Omega$
		$V_{\text{GS}}=4.5\text{V}, I_{\text{D}}=6\text{A}$	--	16	25	$\text{m}\Omega$
Forward Transconductance ^{Note4}	g_{FS}	$V_{\text{DS}}=5\text{V}, I_{\text{D}}=2\text{A}$	--	7	--	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{\text{DS}}=15\text{V}, V_{\text{GS}}=0\text{V}, f=1\text{MHz}$	--	805	--	pF
Output Capacitance	C_{oss}		--	96.5	--	pF
Reverse Transfer Capacitance	C_{rss}		--	79	--	pF
Gate Resistance	R_{G}	$V_{\text{DS}}=0\text{V}, V_{\text{GS}}=0\text{V}, f=1\text{MHz}$	--	1	--	Ω
Total Gate Charge	Q_{g}	$V_{\text{DS}}=15\text{V}, I_{\text{D}}=15\text{A}, V_{\text{GS}}=10\text{V}$	--	16	--	nC
Gate-Source Charge	Q_{gs}		--	3.6	--	nC
Gate-Drain Charge	Q_{gd}		--	3.4	--	nC
Switching Characteristics						
Turn-on Delay Time	$t_{\text{d}(\text{on})}$	$V_{\text{DD}}=15\text{V}, I_{\text{D}}=15\text{A}, V_{\text{GS}}=10\text{V}, R_{\text{GEN}}=3\Omega$	--	6	--	nS
Turn-on Rise Time	t_{r}		--	15	--	nS
Turn-off Delay Time	$t_{\text{d}(\text{off})}$		--	17	--	nS
Turn-off Fall Time	t_{f}		--	5	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage ^{Note4}	V_{SD}	$V_{\text{GS}}=0\text{V}, I_{\text{S}}=12\text{A}$	--	--	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: $T_J=25^\circ\text{C}, V_{\text{DD}}=30\text{V}, V_{\text{G}}=10\text{V}, R_{\text{G}}=25\Omega, L=0.5\text{mH}, I_{\text{AS}}=10\text{A}$.

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

4. Pulse Test: Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.



PJM10C30PA

N and P-Channel Complementary Power MOSFET

P-Channel

Electrical Characteristics

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

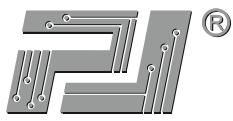
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$-V_{(\text{BR})\text{DSS}}$	$V_{\text{GS}}=0\text{V}, I_D=-250\mu\text{A}$	30	--	--	V
Zero Gate Voltage Drain Current	$-I_{\text{DSS}}$	$V_{\text{DS}}=-30\text{V}, V_{\text{GS}}=0\text{V}$	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{\text{GS}}=\pm 20\text{V}, V_{\text{DS}}=0\text{V}$	--	--	± 100	nA
Gate Threshold Voltage ^{Note4}	$-V_{\text{GS}(\text{th})}$	$V_{\text{DS}}=V_{\text{GS}}, I_D=-250\mu\text{A}$	1	1.4	3	V
Drain-Source On-Resistance ^{Note4}	$R_{\text{DS}(\text{on})}$	$V_{\text{GS}}=-10\text{V}, I_D=-8\text{A}$	--	19	25	$\text{m}\Omega$
		$V_{\text{GS}}=-4.5\text{V}, I_D=-6\text{A}$	--	32	40	$\text{m}\Omega$
Forward Transconductance ^{Note4}	g_{FS}	$V_{\text{DS}}=-5\text{V}, I_D=-2\text{A}$	--	8	--	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{\text{DS}}=-15\text{V}, V_{\text{GS}}=0\text{V}, f=1\text{MHz}$	--	664	--	pF
Output Capacitance	C_{oss}		--	117	--	pF
Reverse Transfer Capacitance	C_{rss}		--	98	--	pF
Gate Resistance	R_G	$V_{\text{DS}}=0\text{V}, V_{\text{GS}}=0\text{V}, f=1\text{MHz}$	--	14.7	--	Ω
Total Gate Charge	Q_g	$V_{\text{DS}}=-15\text{V}, I_D=-8\text{A}, V_{\text{GS}}=-10\text{V}$	--	51	--	nC
Gate-Source Charge	Q_{gs}		--	9.8	--	nC
Gate-Drain Charge	Q_{gd}		--	8.2	--	nC
Switching Characteristics						
Turn-on Delay Time	$t_{\text{d}(\text{on})}$	$V_{\text{DD}}=-15\text{V}, I_D=-1\text{A}, V_{\text{GS}}=-10\text{V}, R_{\text{GEN}}=6\Omega$	--	13	--	nS
Turn-on Rise Time	t_r		--	15	--	nS
Turn-off Delay Time	$t_{\text{d}(\text{off})}$		--	198	--	nS
Turn-off Fall Time	t_f		--	98	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage ^{Note4}	$-V_{\text{SD}}$	$V_{\text{GS}}=0\text{V}, I_S=-9\text{A}$	--	--	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: $T_J=25^\circ\text{C}, V_{\text{DD}}=-30\text{V}, V_{\text{G}}=-10\text{V}, R_G=25\Omega, L=0.5\text{mH}, I_{\text{AS}}=-10.5\text{A}$.

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

4. Pulse Test: Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

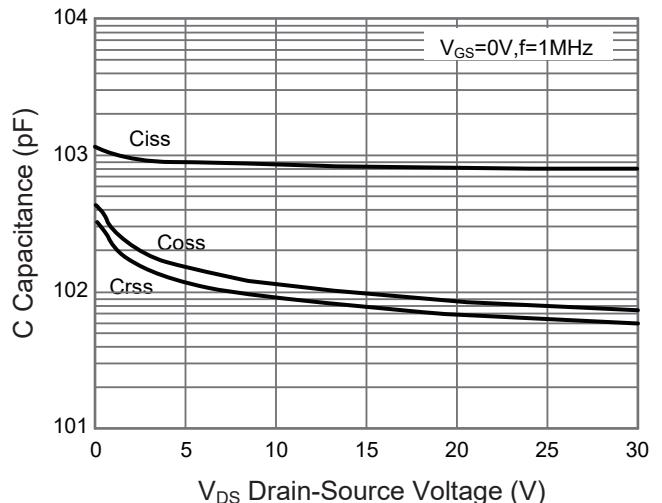
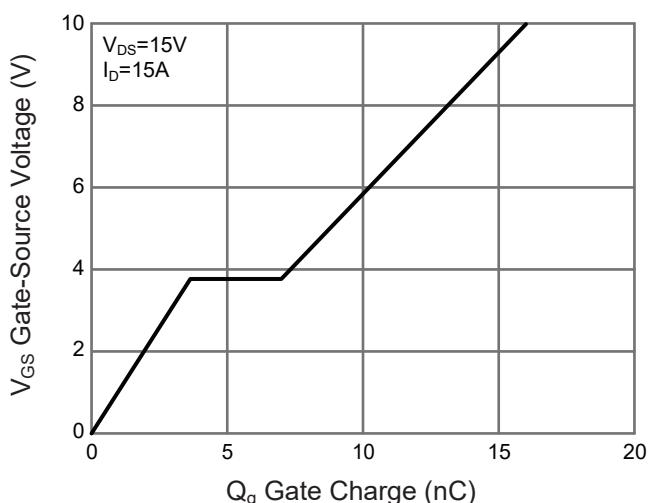
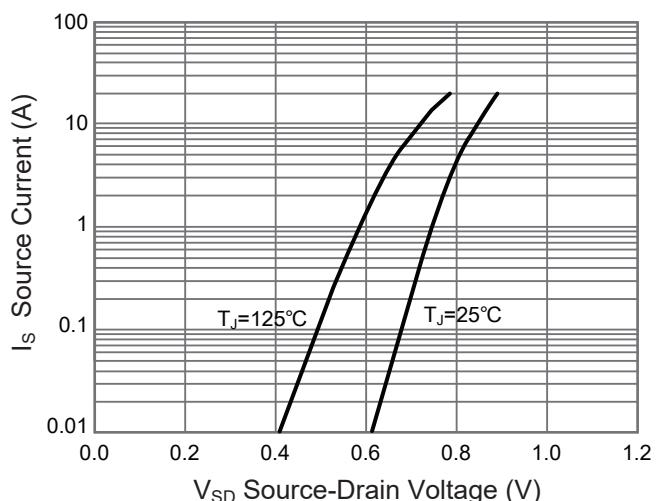
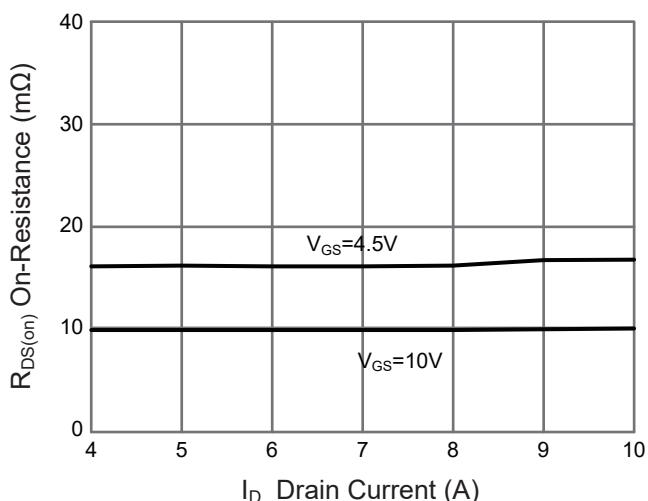
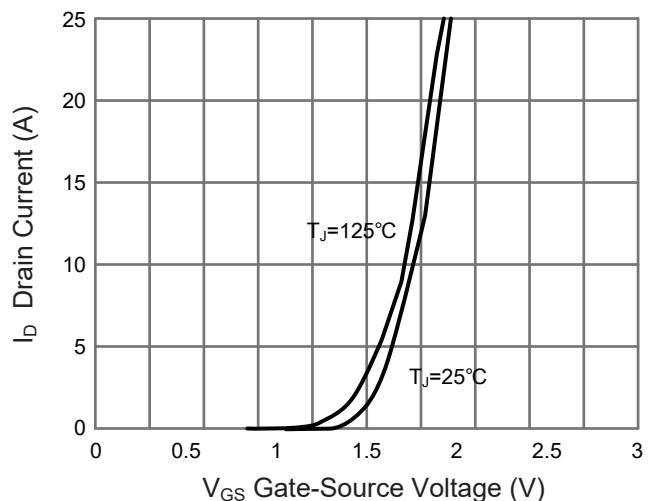
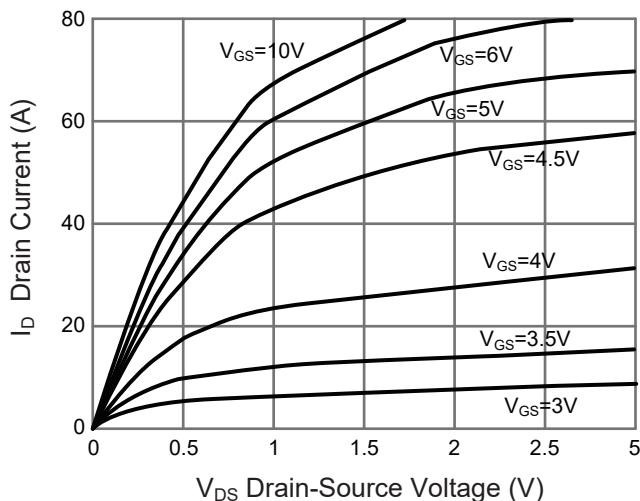


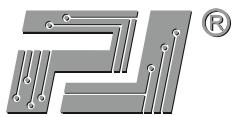
PJM10C30PA

N and P-Channel Complementary Power MOSFET

N-Channel

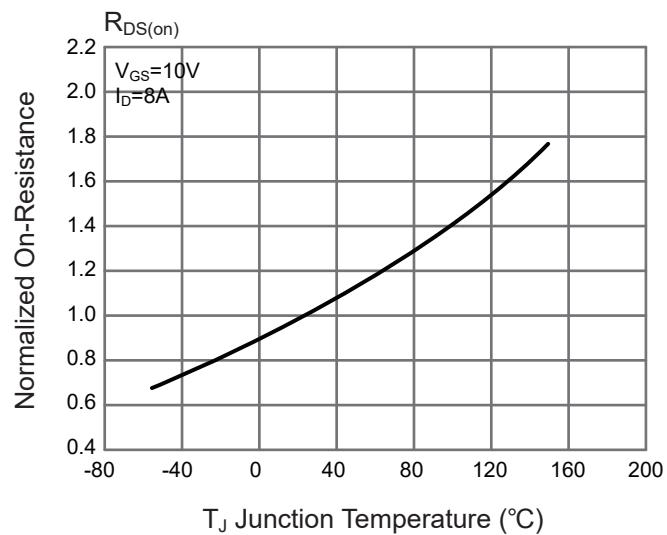
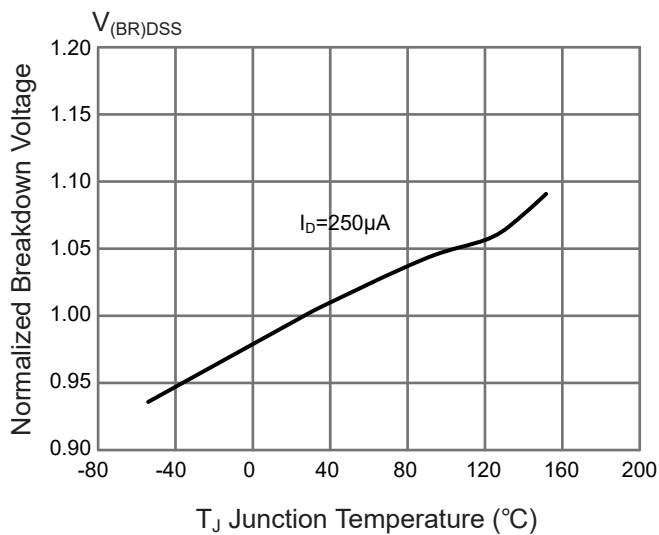
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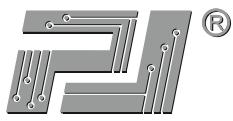




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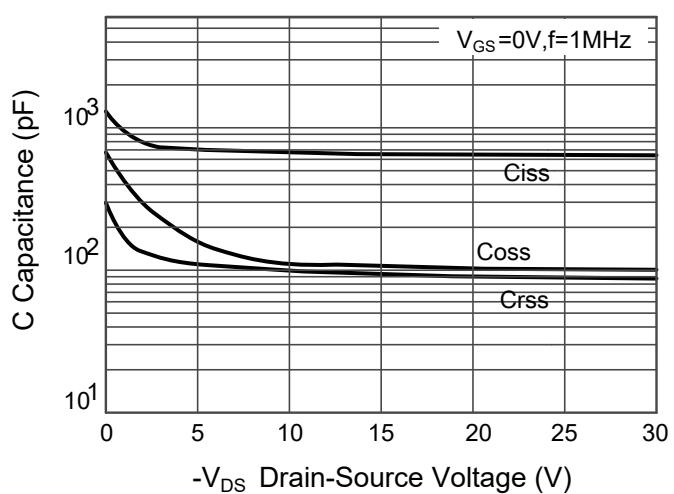
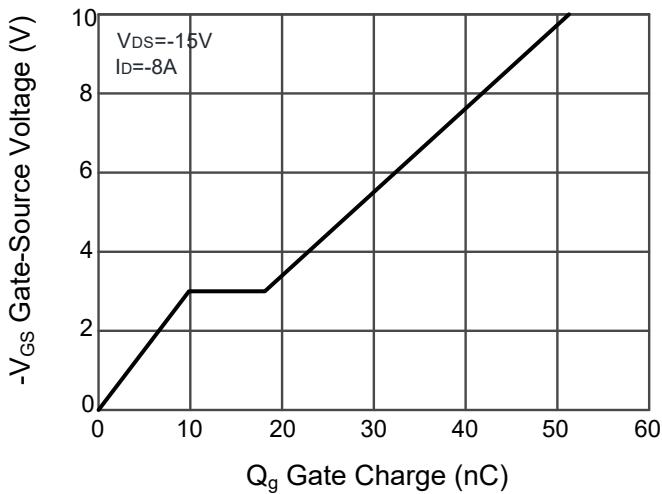
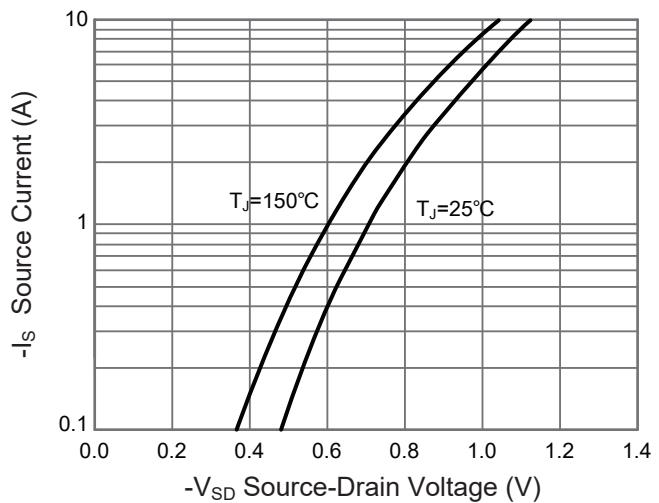
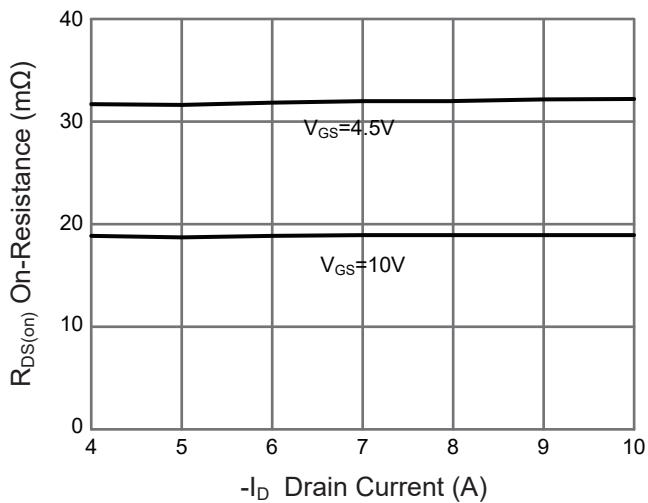
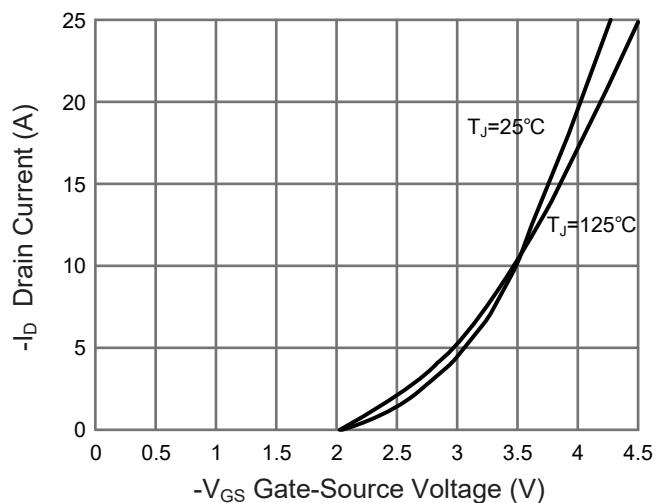
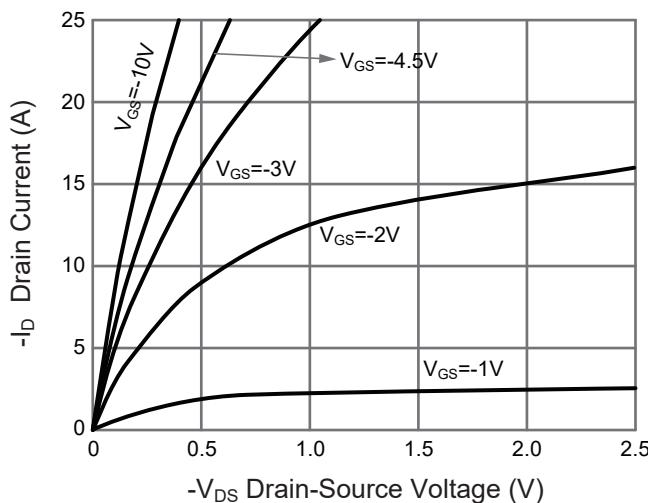
N and P-Channel Complementary Power MOSFET

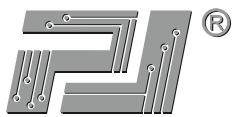




P-Channel

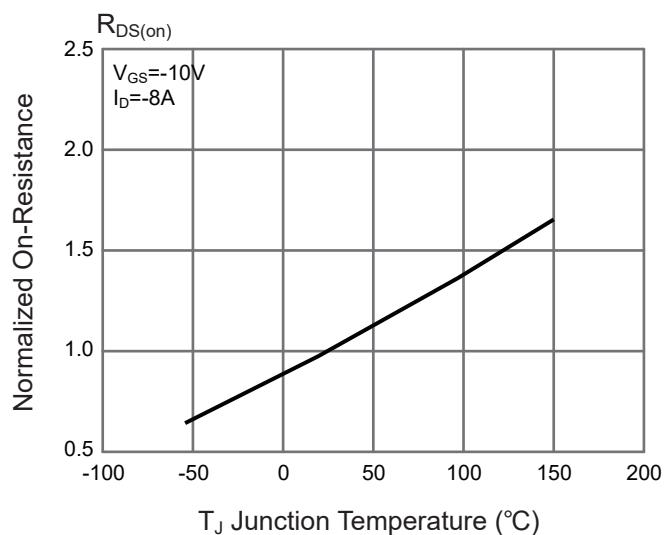
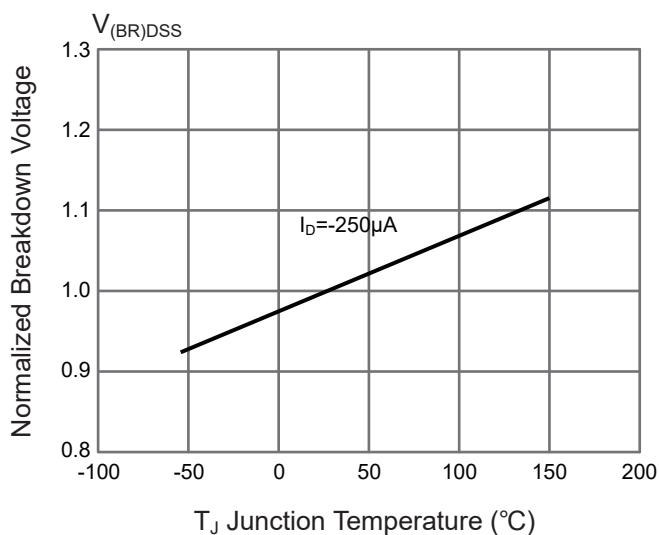
Typical Characteristics Curves

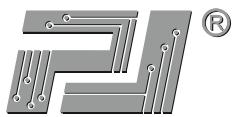




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N and P-Channel Complementary Power MOSFET

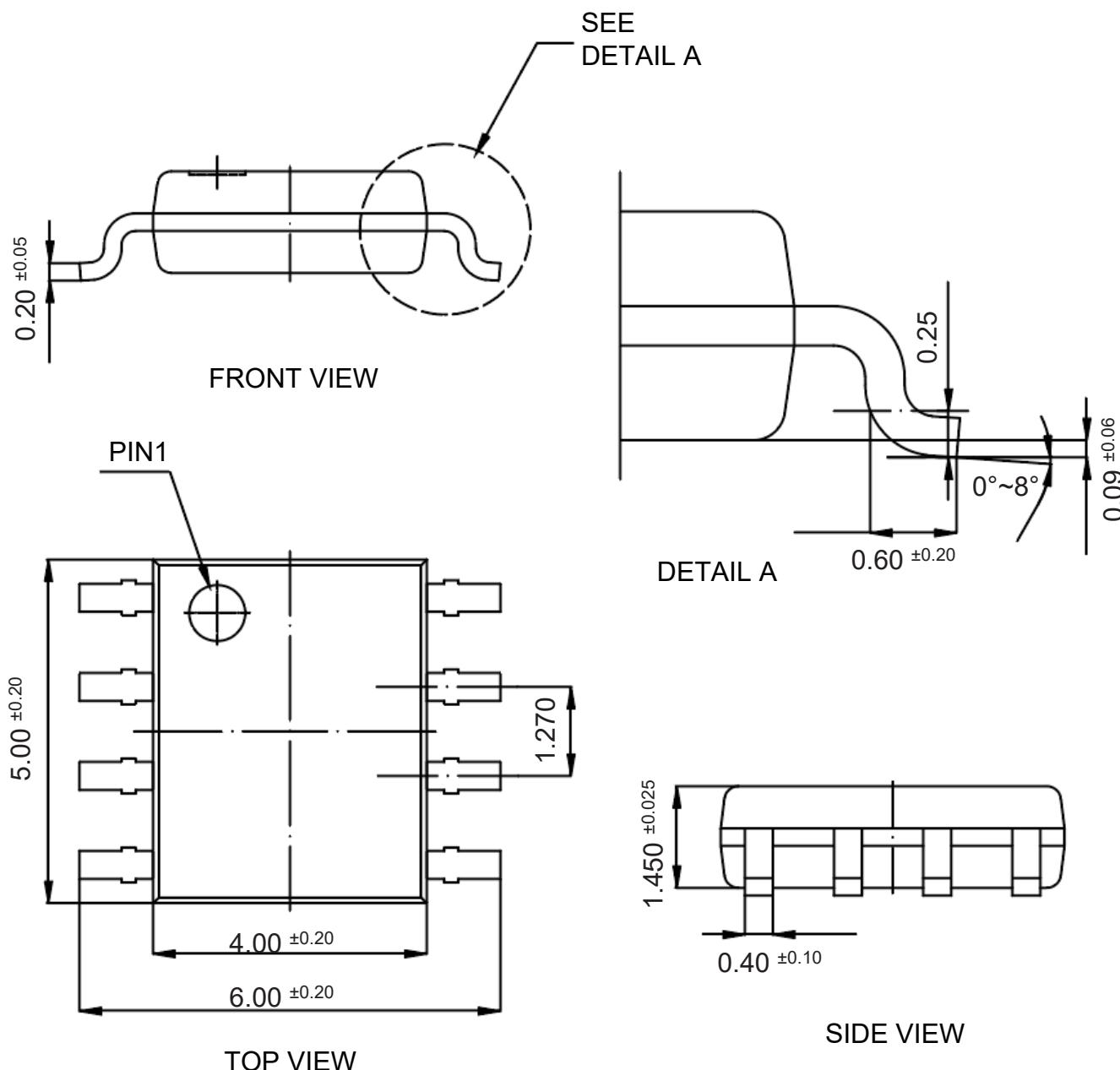




Package Outline

SOP-8

Dimensions in mm



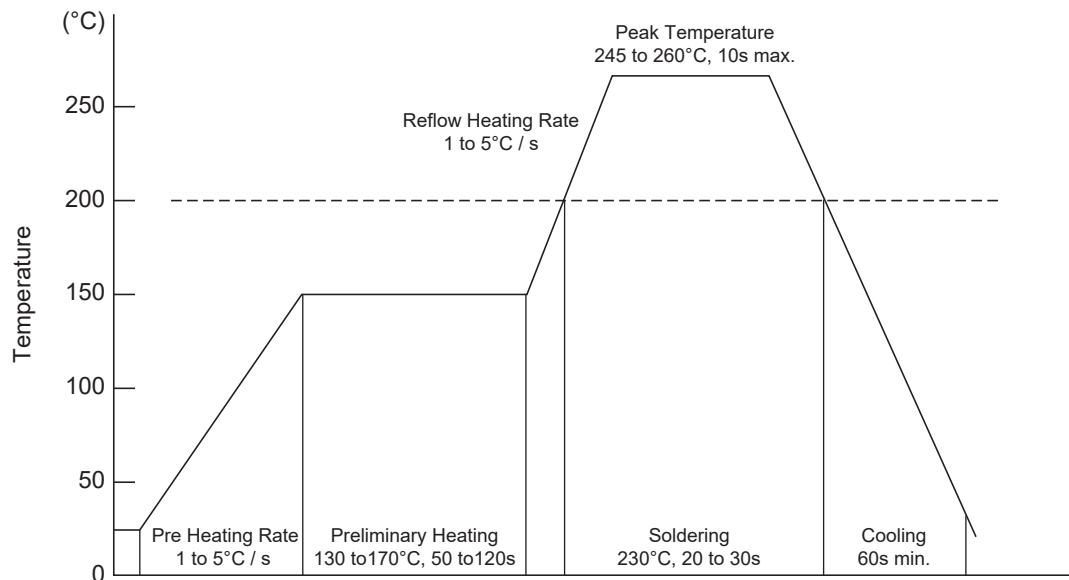
Ordering Information

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

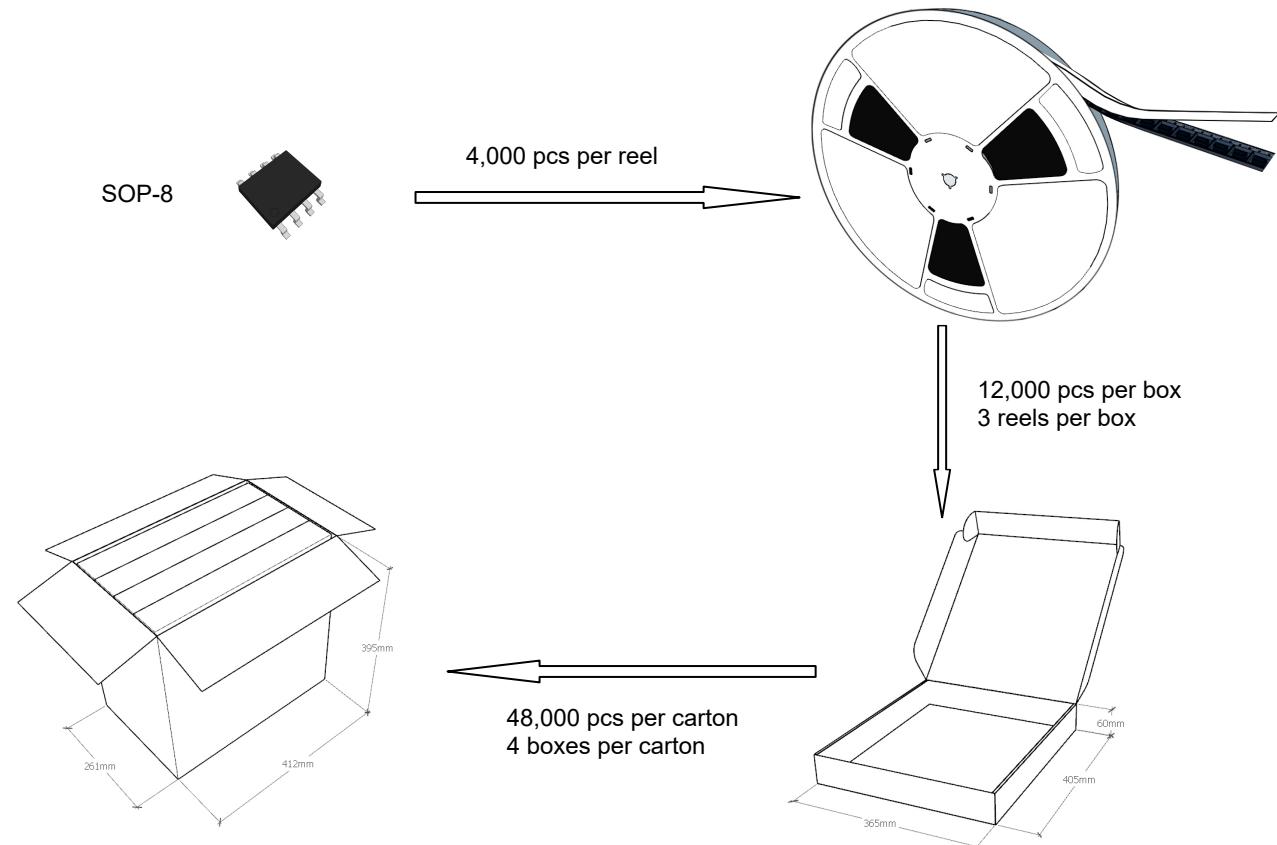
◆ Storage conditions

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

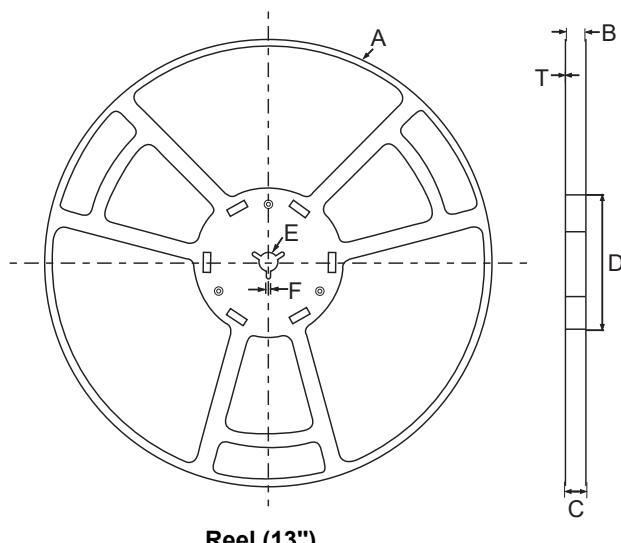


Package Specifications

- 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

