



PJM13P40PA

P-Channel Enhancement Mode Power MOSFET

Product Summary

- $V_{DS} = -40V, I_D = -13A$
- $R_{DS(on)} < 14.3m\Omega @ V_{GS} = -10V$
- $R_{DS(on)} < 22m\Omega @ V_{GS} = -4.5V$

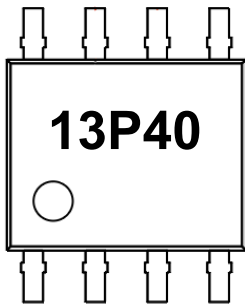
Features

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

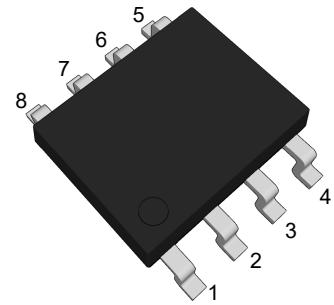
Application

- Load Switch
- PWM Applications
- Power Management

Marking Code



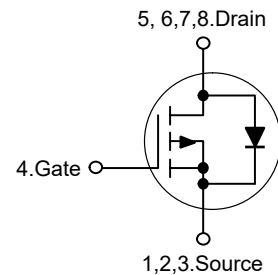
SOP-8



(Top View)

Pin	Description
1,2,3	Source
4	Gate
5,6,7,8	Drain

Schematic Diagram



Absolute Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$-V_{DS}$	40	V
Gate-Source Voltage	$-V_{GS}$	± 20	V
Drain Current-Continuous	$-I_D$	13	A
Drain Current-Pulsed ^{Note1}	$-I_{DM}$	48	A
Maximum Power Dissipation	P_D	3.5	W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Maximum Junction-to-Ambient ^{Note2}	$R_{\theta JA}$	36	°C/W
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Electrical Characteristics

(Ta=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$-V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	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	1.6	2.5	V
Drain-Source On-Resistance ^{Note3}	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-10A$	--	9	14.3	m Ω
		$V_{GS}=-4.5V, I_D=-10A$	--	13	22	m Ω
Forward Transconductance ^{Note3}	g_{FS}	$V_{DS}=-5V, I_D=-4A$	--	22	--	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=-15V, V_{GS}=0V, f=1MHz$	--	3800	--	pF
Output Capacitance	C_{oss}		--	370	--	pF
Reverse Transfer Capacitance	C_{rss}		--	315	--	pF
Gate Resistance	R_g	$V_{DS}=0V, f=1MHz$	--	5	--	Ω
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=-20V, V_{GS}=-10V$ $I_D=-12A, R_{GEN}=2.5\Omega$	--	10	--	nS
Turn-on Rise Time	t_r		--	21	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	53	--	nS
Turn-off Fall Time	t_f		--	29	--	nS
Total Gate Charge	Q_g	$V_{DS}=-20V, V_{GS}=-10V, I_D=-12A$	--	42	--	nC
Gate-Source Charge	Q_{gs}		--	7.3	--	nC
Gate-Drain Charge	Q_{gd}		--	8.5	--	nC
Source-Drain Diode Characteristics						
Diode Forward Voltage ^{Note3}	$-V_{SD}$	$V_{GS}=0V, I_S=-10A$	--	0.8	1.2	V
Diode Forward Current ^{Note2}	$-I_S$		--	--	13	A

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

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

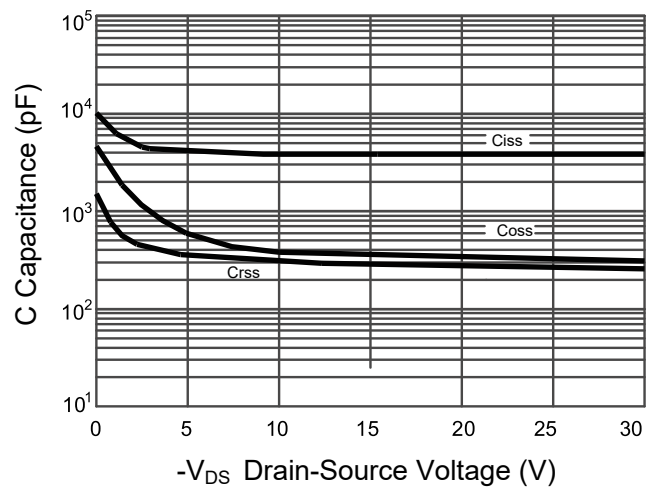
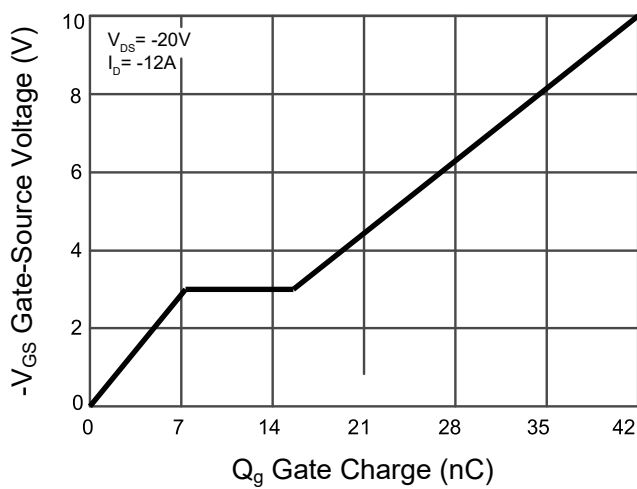
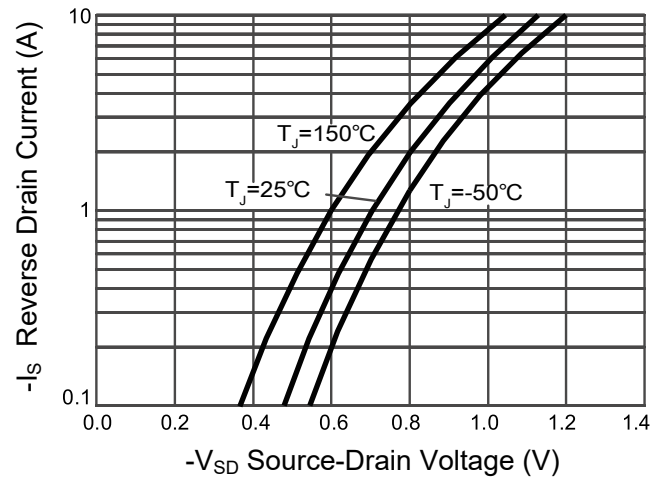
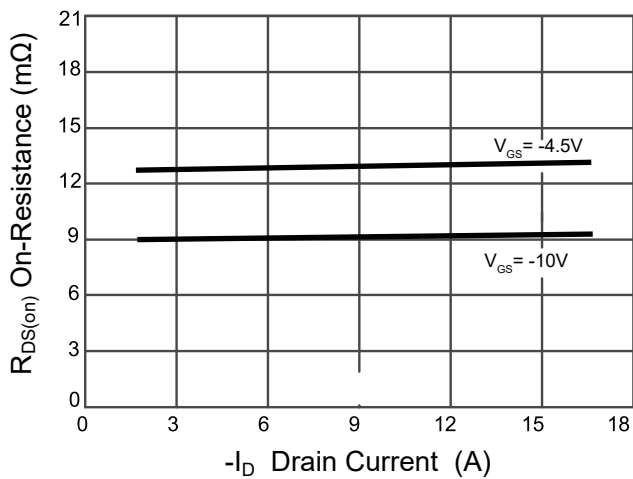
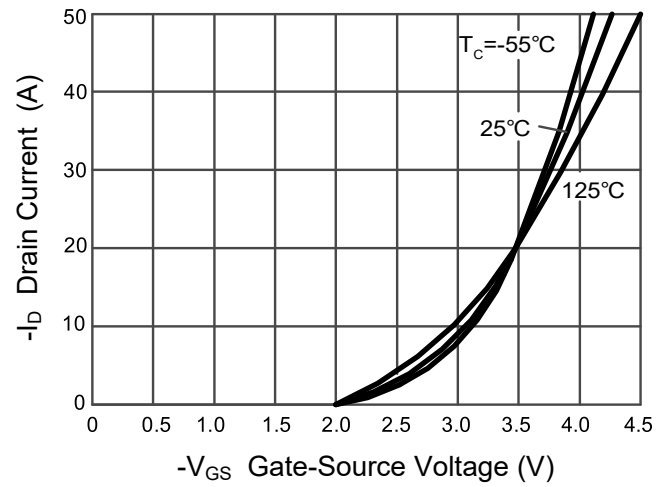
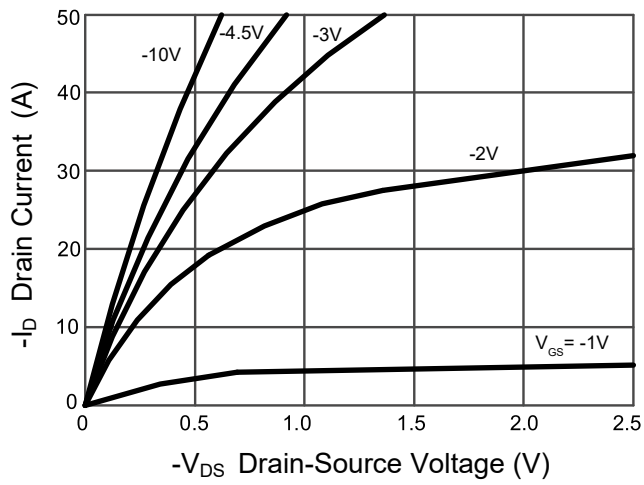
3. Pulse Test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$



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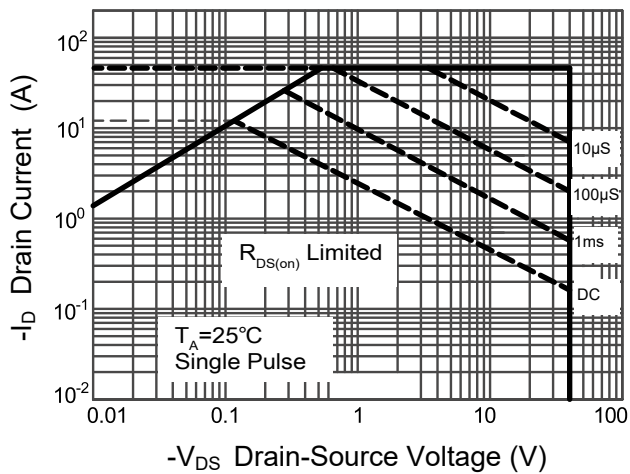
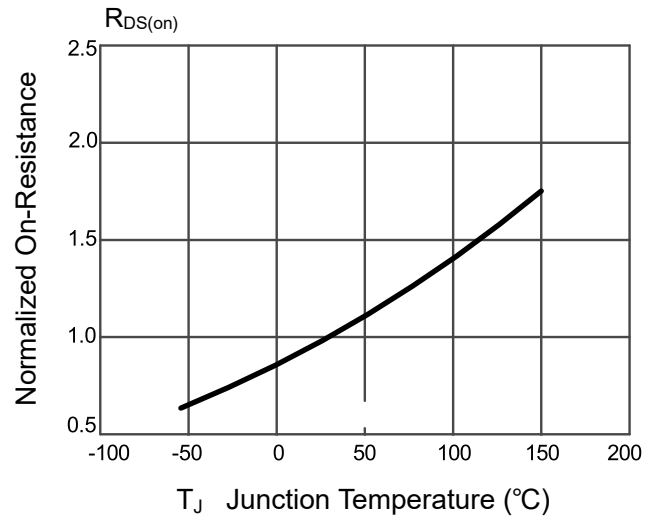
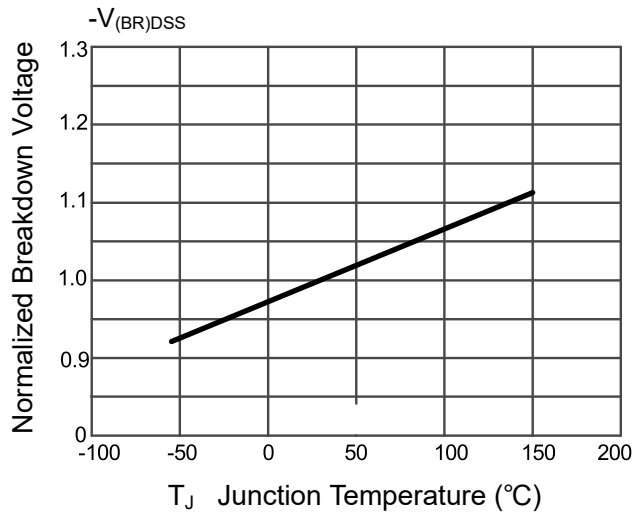
Typical Characteristic Curves





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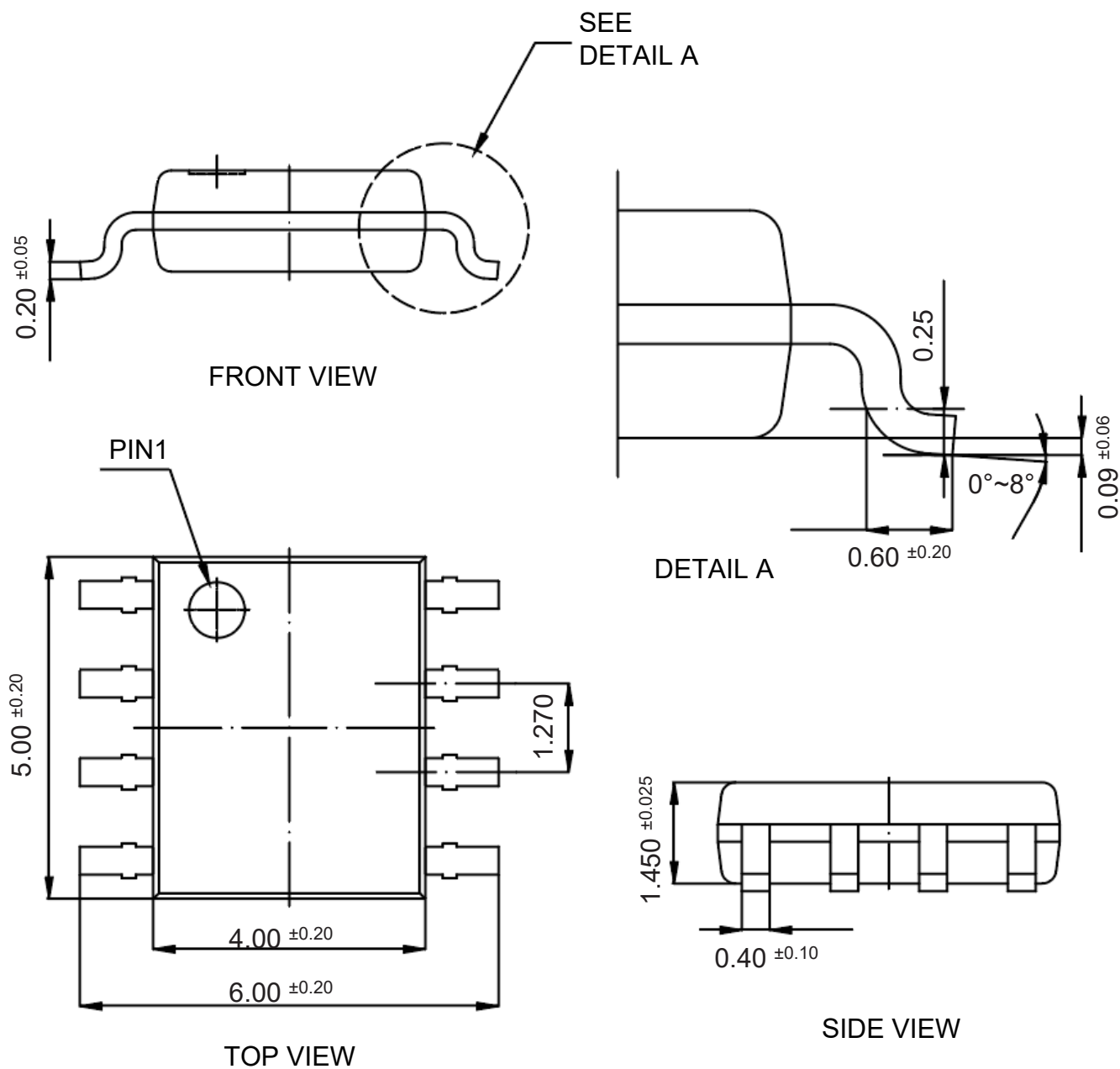
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Package Outline

SOP-8

Dimensions in mm



Ordering Information

Device	Package	Shipping
PJM13P40PA	SOP-8	4,000PCS/Reel&13inches