

➤ General Description

This PAP4041S P-Channel enhancement mode power field effect transistor is the high density trench technology and this advanced technology can provide excellent $R_{ds(On)}$ performance and efficiency for power switching and load switching application., this device also comply with the RoHS and Green Product requirement with full function reliability approved.

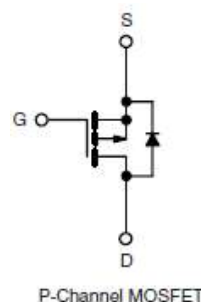
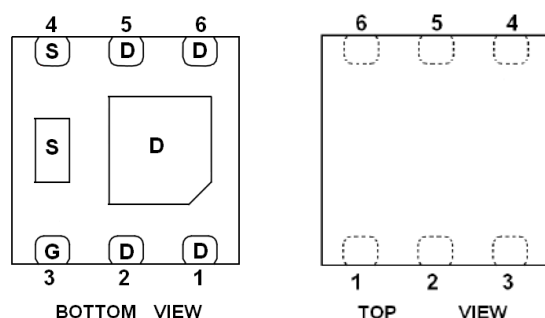
➤ Feature

- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- DFN2X2-6L package design

➤ Application

- Load Switch
- Portable Equipment
- Battery Powered System

➤ DFN2X2-6L



P-Channel MOSFET

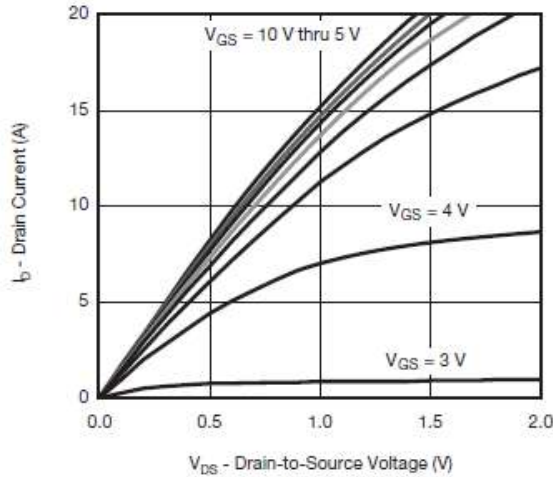
➤ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	-40	V
Gate -Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current($T_J=150^{\circ}C$)	I_D	$T_A=25^{\circ}C$ -4.2	A
		$T_A=70^{\circ}C$ -3.2	
Pulsed Drain Current	I_{DM}	-20	A
Continuous Source Current(Diode Conduction)	I_S	-1.6	A
Power Dissipation	P_D	$T_C=25^{\circ}C$ 7.8	W
		$T_C=70^{\circ}C$ 5.0	
Operating Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature Range	T_{STG}	-55/150	$^{\circ}C$
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	120	$^{\circ}C/W$

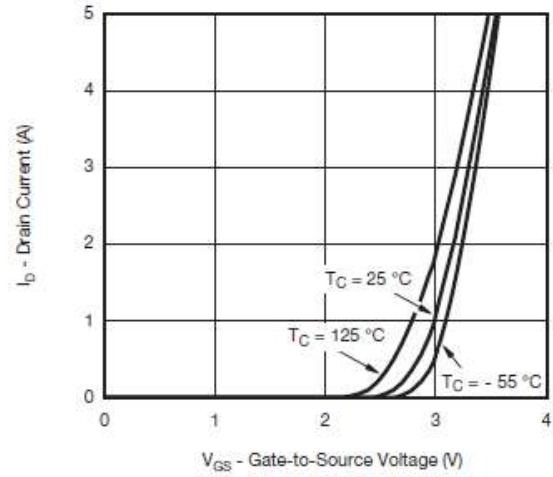
➤ Electrical Characteristics ($T_A=25^\circ C$ Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-40			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0		-2.0	
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 12V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-32V, V_{GS}=0V$			-1	uA
		$V_{DS}=-32V, V_{GS}=0V$ $T_J=85^\circ C$			-30	
On-State Drain Current	$I_{D(on)}$	$V_{DS}\leq -5V, V_{GS}=-10V$	-10			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-4.2A$		65	75	m Ω
		$V_{GS}=-4.5V, I_D=-3.2A$		92	105	
Forward Transconductance	g_{FS}	$V_{DS}=-15V, I_D=-3A$		8		S
Diode Forward Voltage	V_{SD}	$I_S=-2A, V_{GS}=0V$		-0.85	-1.3	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=-20V, V_{GS}=-4.5V$ $I_D\equiv -3.0A$		5	10	nC
Gate-Source Charge	Q_{gs}			1.5		
Gate-Drain Charge	Q_{gd}			2.5		
Input Capacitance	C_{iss}	$V_{DS}=-20V, V_{GS}=0V$ $f=1MHz$		500		pF
Output Capacitance	C_{oss}			65		
Reverse Transfer Capacitance	C_{rss}			50		
Turn-On Time	$t_{d(on)}$	$V_{DD}=-20V, R_L=8\Omega$ $I_D\equiv -2.5A, V_{GEN}=-4.5V$ $R_G=1.0\Omega$		25	50	ns
	t_r			15	30	
Turn-Off Time	$t_{d(off)}$			10	25	
	t_f			10	25	

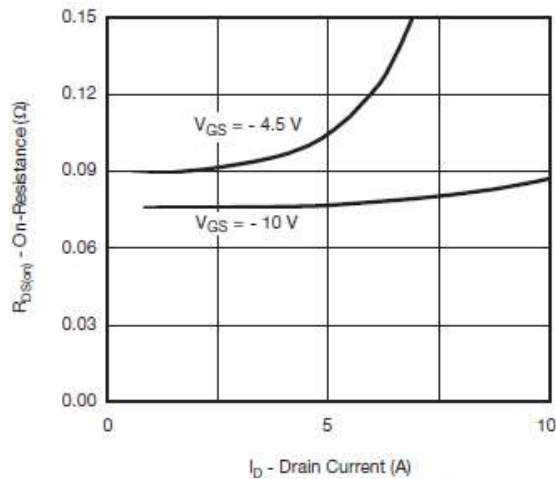
➤ Typical Characteristics



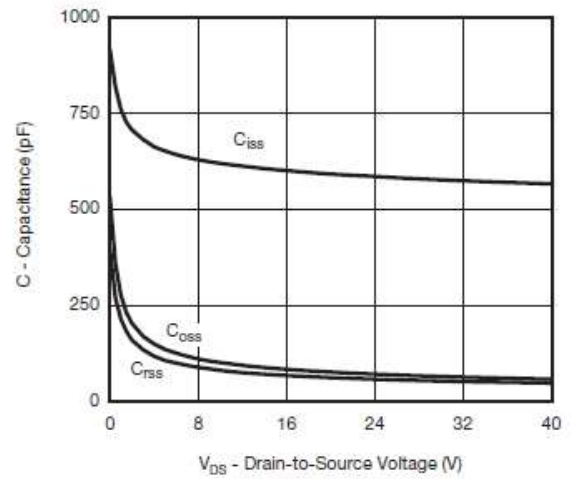
Output Characteristics



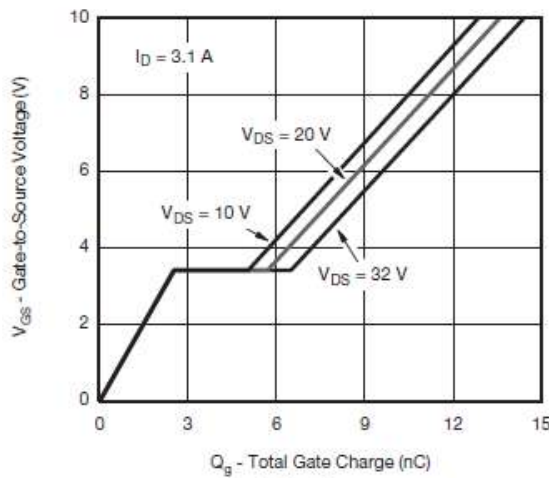
Transfer Characteristics



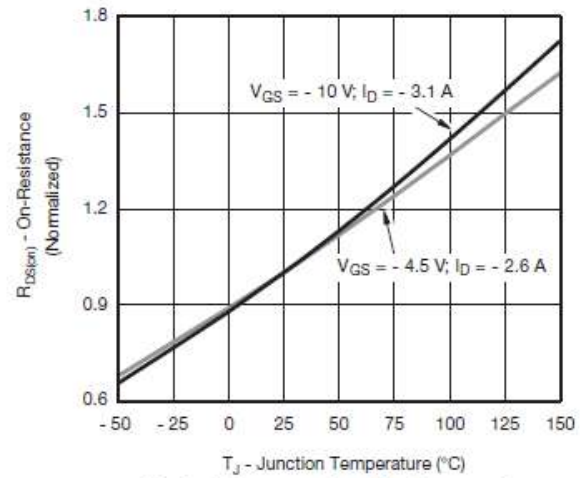
On-Resistance vs. Drain Current



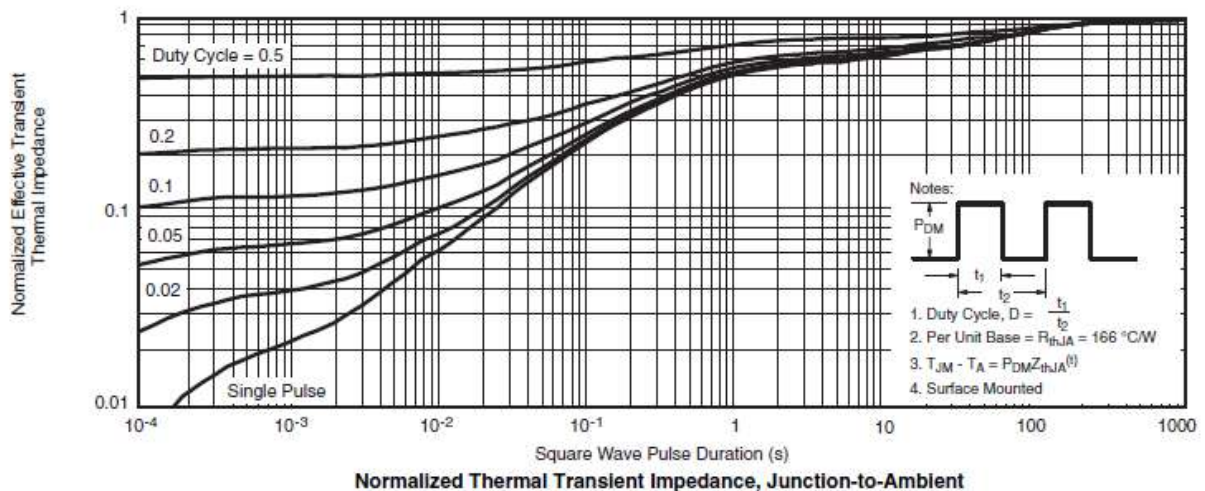
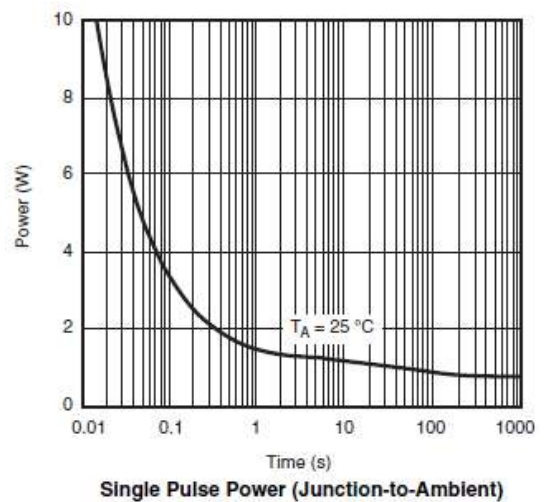
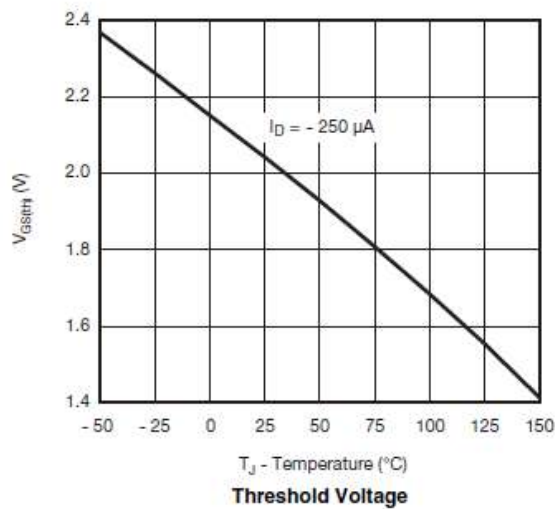
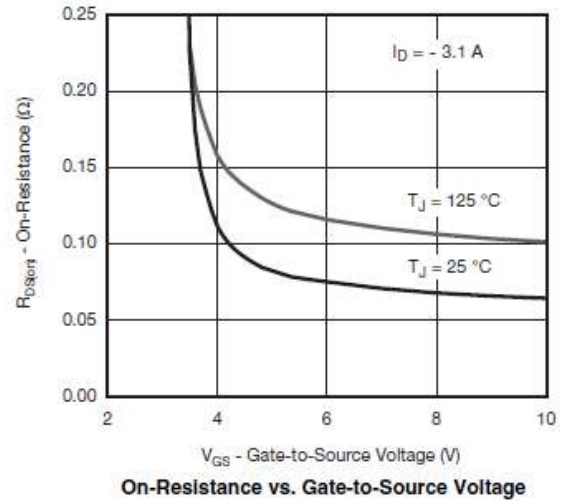
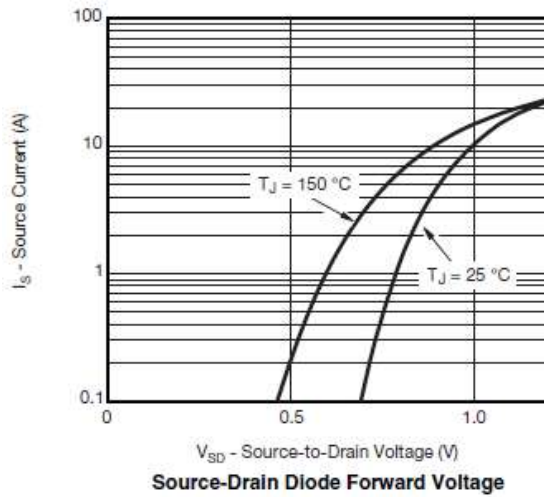
Capacitance



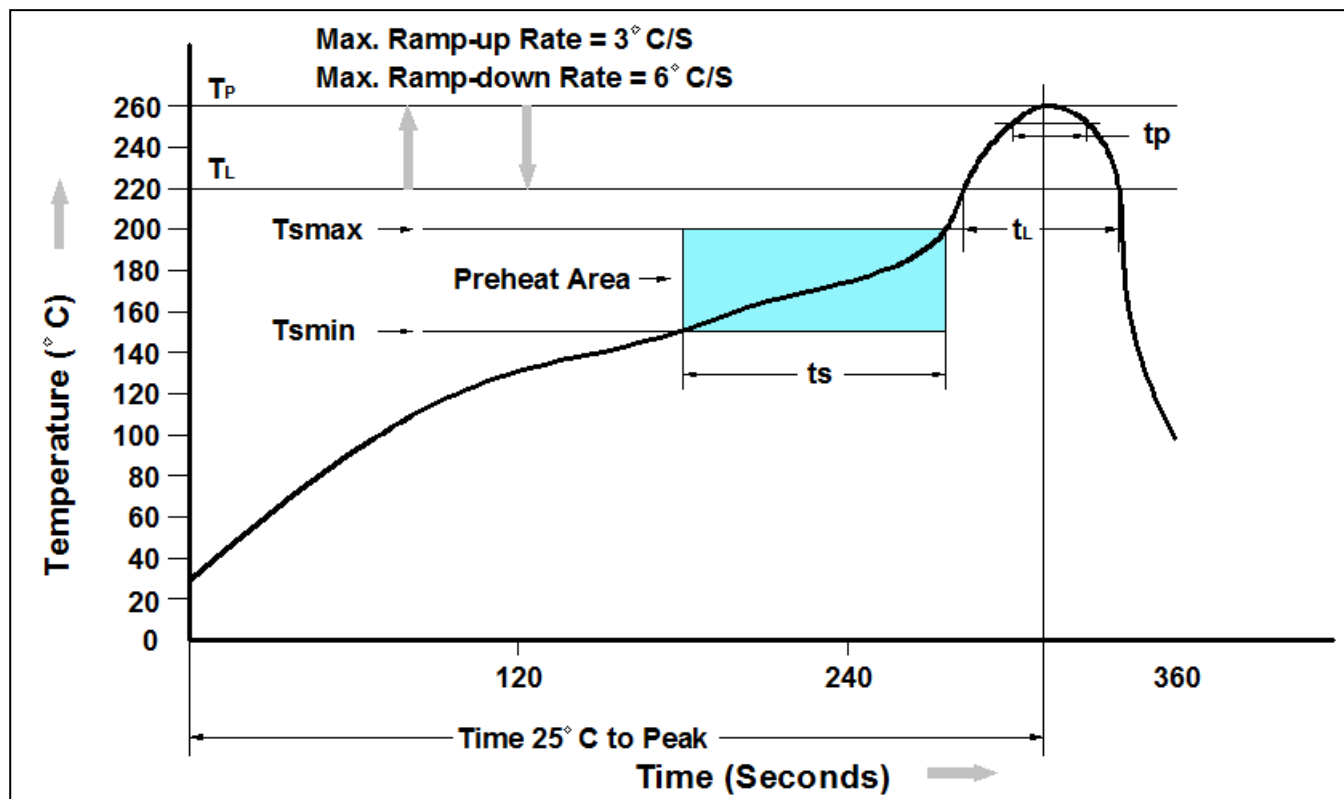
Gate Charge



On-Resistance vs. Junction Temperature



➤ Recommend IR Reflow Soldering Thermal Profile

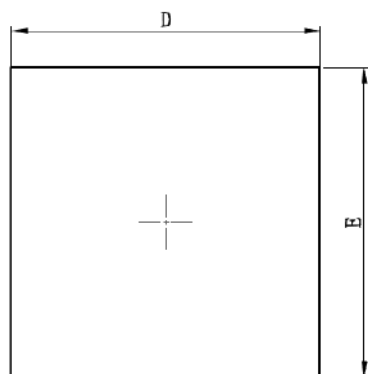


Profile Feature	Pb-Free Assembly Profile
Temperature Min. (T_{smin})	150°C
Temperature Max. (T_{smax})	200°C
Time (t_s) from (T_{smin} to T_{smax})	60-120 seconds
Average Ramp-up Rate (t_L to t_P)	3°C/second max.
Liquidous Temperature (T_L)	217°C
Time (t_L) Maintained Above (T_L)	60 – 150 seconds
Peak Temperature	260°C +0°C / -5°C
Time (t_P) within 5°C of actual Peak Temperature	30 seconds
Ramp-down Rate (T_P to T_L)	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.

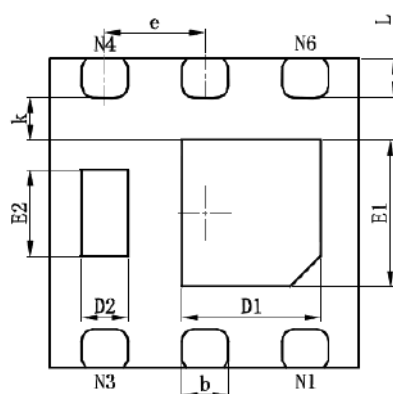
➤ Ordering Information

Part Number	Description	Quantity
PAP4041S	DFN2X2-6L Reel	4000 pcs

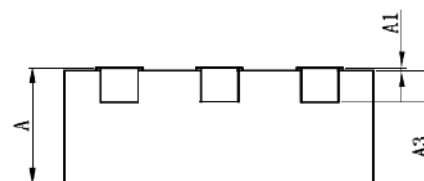
➤ Package Information (DFN2X2-6L)



TOP VIEW



BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.924	2.076	0.076	0.082
E	1.924	2.076	0.076	0.082
D1	0.800	1.000	0.031	0.039
E1	0.850	1.050	0.033	0.041
D2	0.200	0.400	0.008	0.016
E2	0.460	0.660	0.018	0.026
k	0.200MIN.		0.008MIN.	
b	0.250	0.350	0.010	0.014
e	0.650TYP.		0.026TYP.	
L	0.174	0.326	0.007	0.013

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