



Features

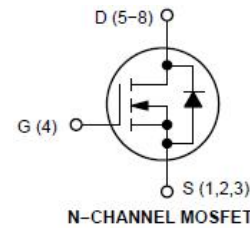
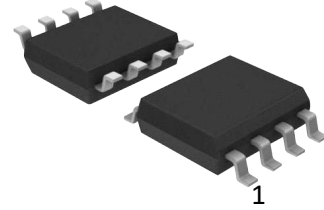
The PJM10H14NPA uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge.

- High density cell design for ultra low R_{dson}
- Fully characterized avalanche voltage and current
- Excellent package for good heat dissipation
- $V_{DSS}=100V$
 $I_D=14A$
 $P_D=3.5W$
 $R_{DS(ON)} < 12m\Omega @ V_{GS}=10V$ (Typ9.9m Ω)

Applications

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

SOP-8



Absolute Maximum Ratings ($T_C=25^\circ C$ unless otherwise specified)

Symbol	Parameter	Rating	Units
V_{DSS}	Drain-to-Source Voltage	100	V
I_D	Continuous Drain Current	14	A
I_{DM}	Pulsed Drain Current	56	A
V_{GS}	Gate-to-Source Voltage	± 20	V
P_D	Power Dissipation	3.5	W
E_{AS}	Single Pulse Avalanche Energy ^{a5}	152	mJ
T_J, T_{stg}	Operating Junction and Storage Temperature Range	150, -55 to 150	$^\circ C$

Thermal Characteristics

Symbol	Parameter	Typ	Units
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	36	$^\circ C / W$

Electrical Characteristics ($T_J=25^\circ C$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
Off Characteristics						
V_{DSS}	Drain to Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	100	--	--	V
I_{DSS}	Drain to Source Leakage Current	$V_{DS}=100V, V_{GS}=0V, T_A=25^\circ C$	--	--	1.0	μA
$I_{GSS(F)}$	Gate to Source Forward Leakage	$V_{GS}=+20V$	--	--	0.1	μA
$I_{GSS(R)}$	Gate to Source Reverse Leakage	$V_{GS}=-20V$	--	--	-0.1	μA



PJM10H14NPA

Single N-Channel Power MOSFET

On Characteristics

$R_{DS(ON)}$	Drain-to-Source On-Resistance	$V_{GS}=10V, I_D=14A$	--	9.9	12	m Ω
$V_{GS(TH)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.7	2.5	V

Pulse width < 380 μ s; duty cycle < 2%.

Dynamic Characteristics

g_{fs}	Forward Transconductance	$V_{DS}=10V, I_D=14A$	--	30	--	S
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=50V, f=1.0MHz$	--	3050		pF
C_{oss}	Output Capacitance		--	274		
C_{rss}	Reverse Transfer Capacitance		--	17.8		

Resistive Switching Characteristics

$t_{d(ON)}$	Turn-on Delay Time	$I_D=14A, V_{DD}=50V$ $V_{GS}=10V, R_g=1.6\Omega$	--	11		ns
t_r	Rise Time		--	7.0		
$t_{d(OFF)}$	Turn-Off Delay Time		--	30		
t_f	Fall Time		--	4.0		
Q_g	Total Gate Charge	$I_D=14A, V_{DD}=50V, V_{GS}=10V$	--	45		nC
Q_{gs}	Gate to Source Charge		--	11.6	--	
Q_{gd}	Gate to Drain ("Miller") Charge		--	6.0	--	

Source-Drain Diode Characteristics

I_{SD}	Continuous Source Current (Body Diode)		--	--	14	A
V_{SD}	Diode Forward Voltage	$I_S=14A, V_{GS}=0V$	--	--	1.2	V

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

a 2 : Surface Mounted on FR4 Board, $t_s \leq 10sec$.

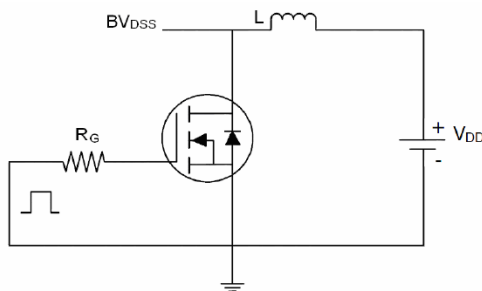
a 3 : Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

a4 : Guaranteed by design, not subject to production

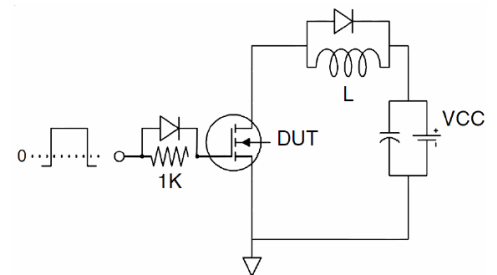
a5 : EAS condition: $T_J=25^\circ C, V_{DD}=50V, V_G=10V, L=0.5mH, R_g=25\Omega$

Test Circuit

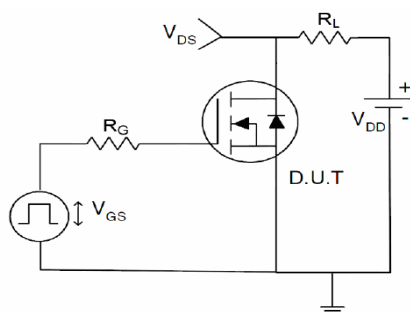
1) EAS test Circuit



2) Gate charge test Circuit



3) Switch Time Test Circuit





Typical Characteristic Curves

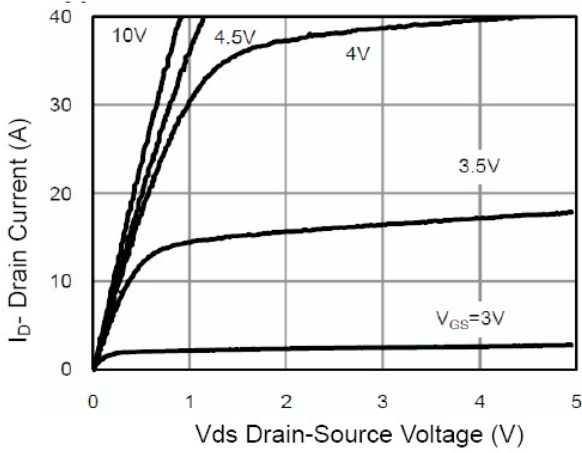


Figure 1 Output Characteristics

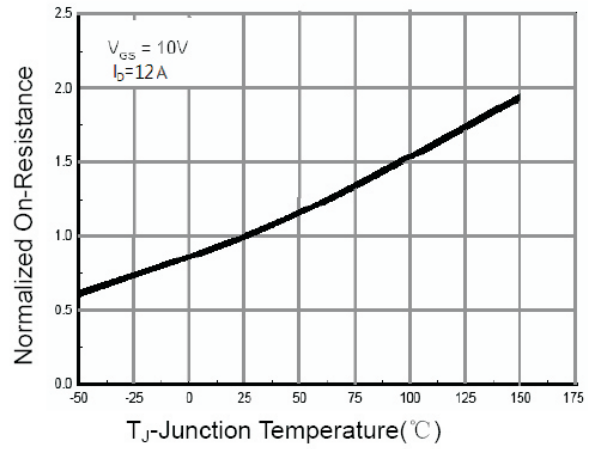


Figure 4 Rdson-Junction Temperature

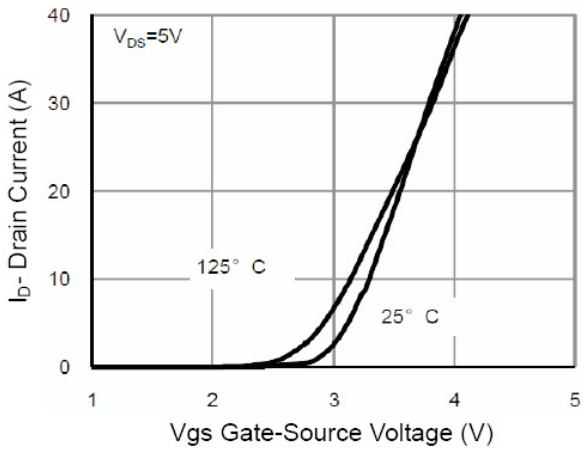


Figure 2 Transfer Characteristics

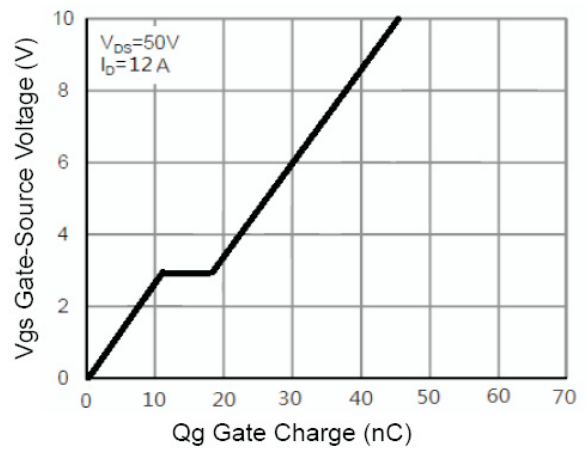


Figure 5 Gate Charge

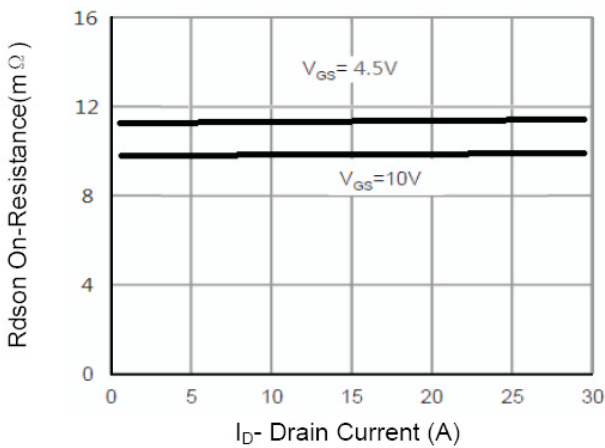


Figure 3 Rdson- Drain Current

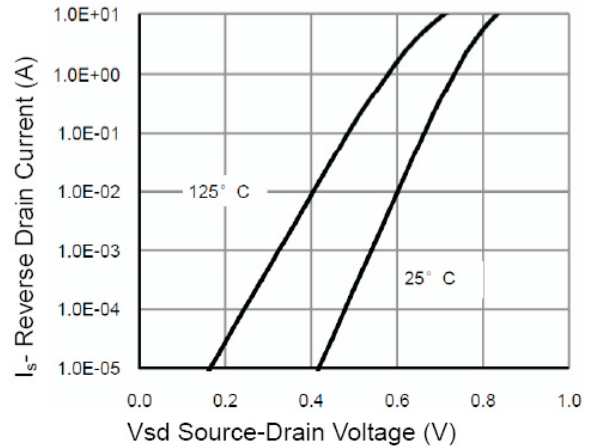


Figure 6 Source- Drain Diode Forward

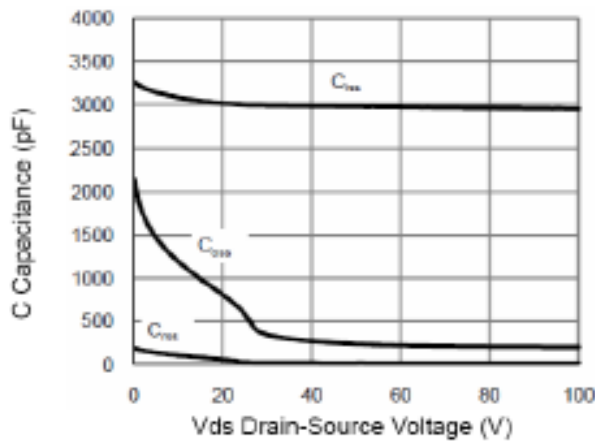


Figure 7 Capacitance vs Vds

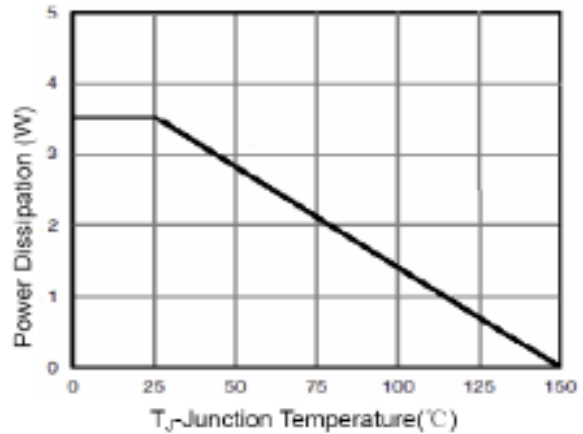


Figure 9 Power De-rating

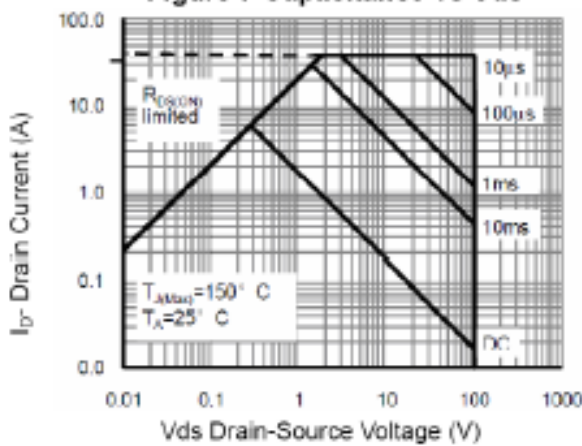


Figure 8 Safe Operation Area

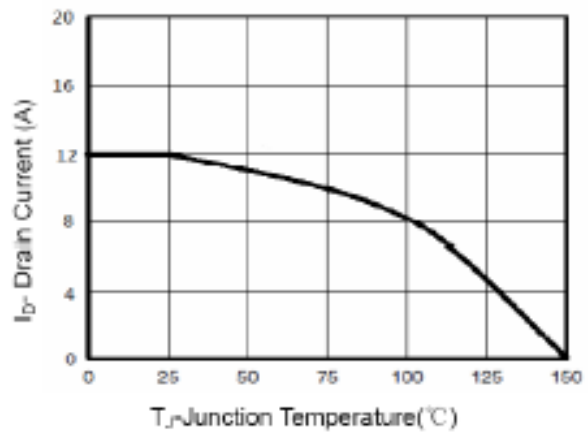


Figure 10 Current De-rating

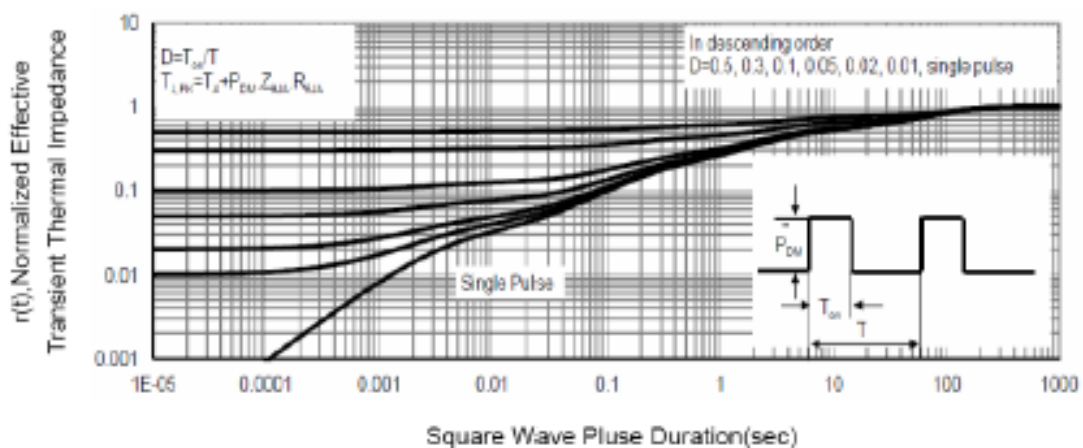


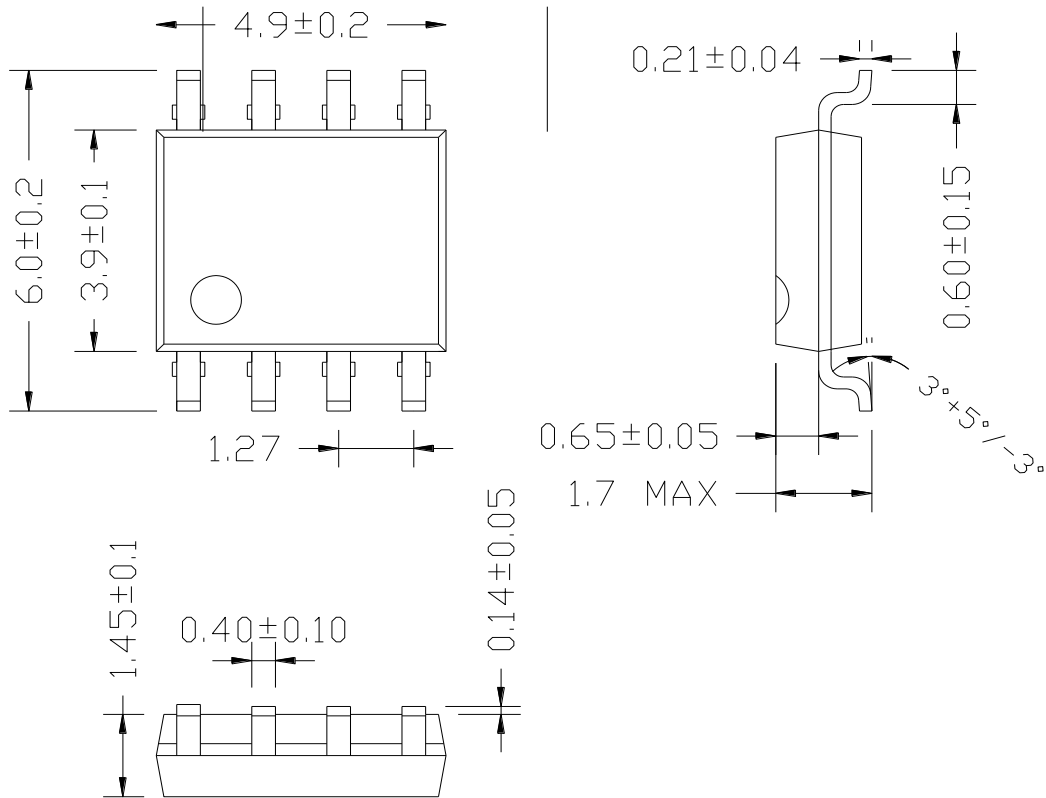
Figure 11 Normalized Maximum Transient Thermal Impedance



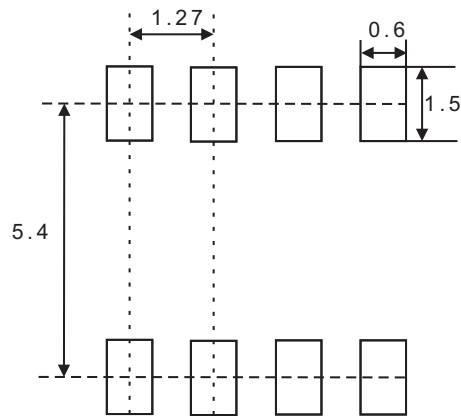
Package Outline

SOP-8

unit: mm



Recommended soldering pad



unit: mm

Ordering information

Device	Package	Shipping
PJM10H14NPA	SOP-8	4000/Reel&Tape(13inch)