Prisemi®

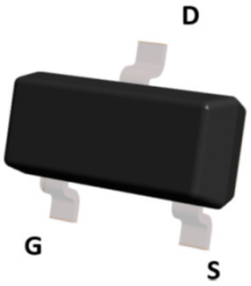
PNMT30V6A

N-Channel MOSFET

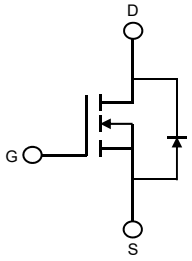
Description

The MOSFET provide the best combination of fast switching , low on-resistance and cost-effectiveness.

- Trench Power LV MOSFET technology
- Voltage controlled small signal switch
- Low input Capacitance
- Fast Switching Speed
- Low Input / Output Leakage



Top View

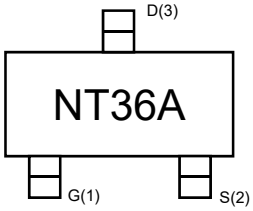


Circuit Diagram

MOSFET Product Summary		
V_{DS}(V)	$R_{DS(on)}$(mΩ)	I_D(A)
30	25@V_{GS} = 10V	5.8

Applications

- Battery operated systems
- Solid-state relays
- Direct logic-level interface: TTL/CMOS



Marking (Top View)

Absolute maximum rating@25℃

Rating		Symbol	Value	Units
Drain-source Voltage		V_{DS}	30	V
Gate-source Voltage		V_{GS}	±12	V
Drain Current		I_D	5.8	A
Pulsed Drain Current		I_{DM}	30	A
Total Power Dissipation	T_A=25℃	P_D	1.4	W
	T_A=75℃		1.0	
Avalanche Energy, Single Pulse		E_{AS}	32.68	mJ
Junction and Storage Temperature Range		T_J,T_{STG}	-55~+150	℃

Electrical characteristics per line@25℃ (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
OFF Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V, I_D = 250μA	30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 30V,V_{GS} = 0V	-	-	1.0	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS} = ±12V, V_{DS} = 0V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	0.6	-	1.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 5.8A	-	25	32	mΩ
		V_{GS} = 4.5V, I_D = 5A	-	28	35	
		V_{GS} = 2.5V, I_D = 4A	-	35	45	
Diode Forward Voltage	V_{SD}	-	-	0.71	1.0	V
Maximum Body-Diode Continuous Current	I_S	-	-	-	2.0	A
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{DS} = 15V,V_{GS} = 0V, f = 1MHz	-	582	-	pF
Output Capacitance	C_{oss}		-	46	-	
Reverse Transfer Capacitance	C_{rss}		-	41	-	
Switching Parameters						
Turn-on Delay Time	$t_{d(on)}$	V_{DS} = 15V, I_D= 4A, V_{GS} = 4.5V,R_G = 10Ω	-	3.03	-	ns
Turn-on Rise Time	t_r		-	9.8	-	
Turn-Off Delay Time	$t_{d(off)}$		-	26.1	-	
Turn-Off Fall Time	t_f		-	13.2	-	
Total Gate Charge	Q_g	V_{DS}= 15V,I_D= 4A, V_{GS}= 4.5V	-	6.4	-	nC
Gate-Source Charge	Q_{gs}		-	0.9	-	
Gate-Drain Charge	Q_{gd}		-	1.4	-	
Gate Resistance	R_g	V_{GS}=0V, V_{DS}=0V,f=1MHz	-	1.87	-	Ω
Reverse recovery time	t_{rr}	I_F=5A, dI/dt=100A/μs	-	10.9	-	nS
Reverse recovery charge	Q_{rr}		-	2.0	-	nC
Reverse recovery current	I_{rrm}		-	0.36	-	A

Typical Characteristics

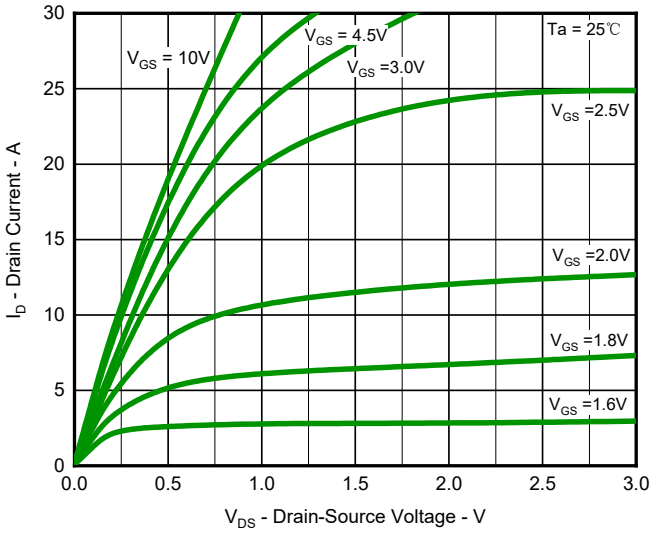


Fig.1 Output Characteristics

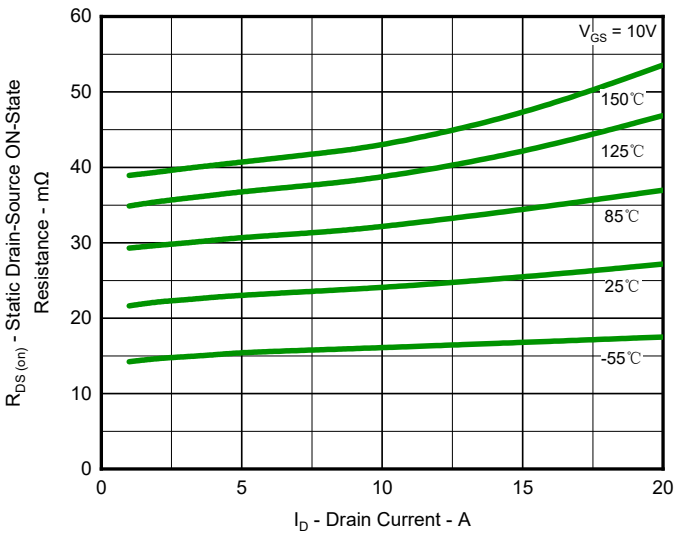


Fig.2 On-Resistance vs. Drain Current

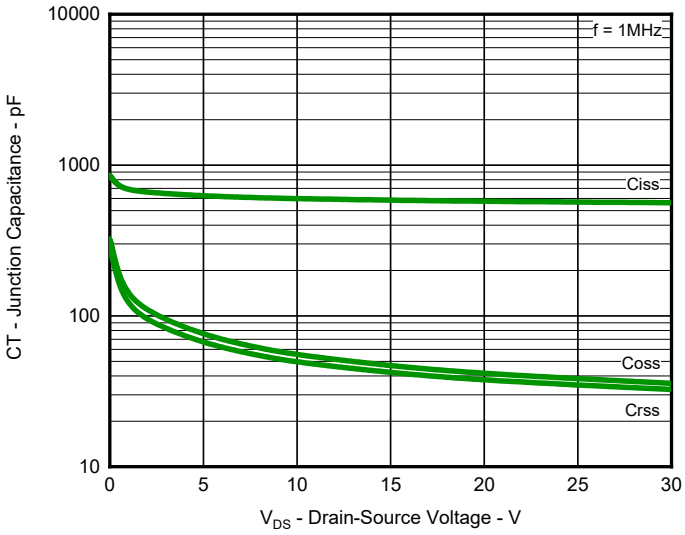


Fig.3 Typical Junction Capacitance

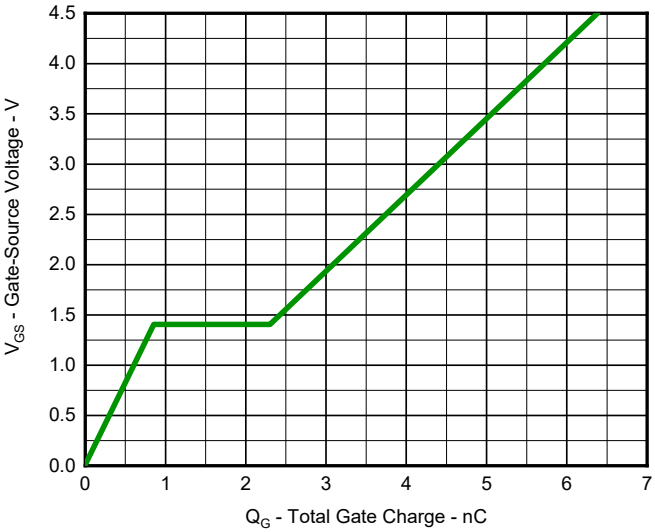


Fig.4 Gate Charge Characteristics

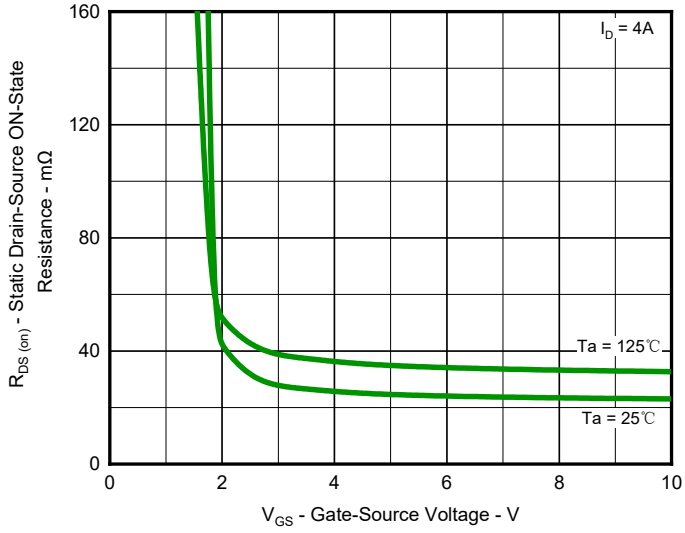


Fig.5 On-Resistance vs. Gate-Source Voltage

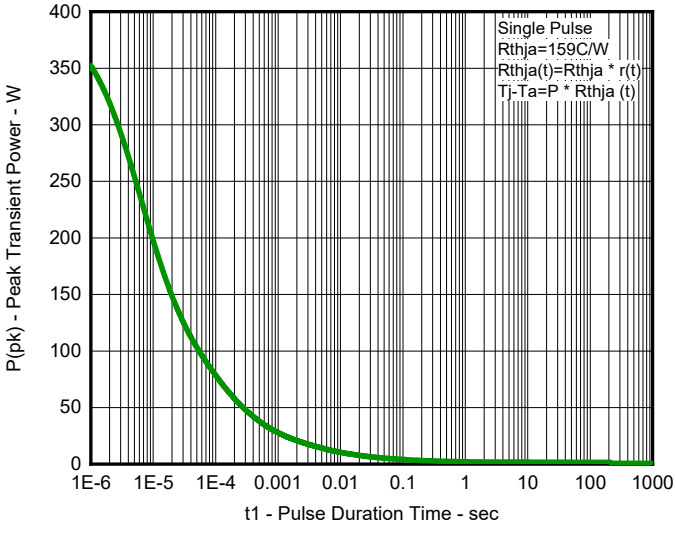


Fig.6 Single Pulse Maximum Power Dissipation

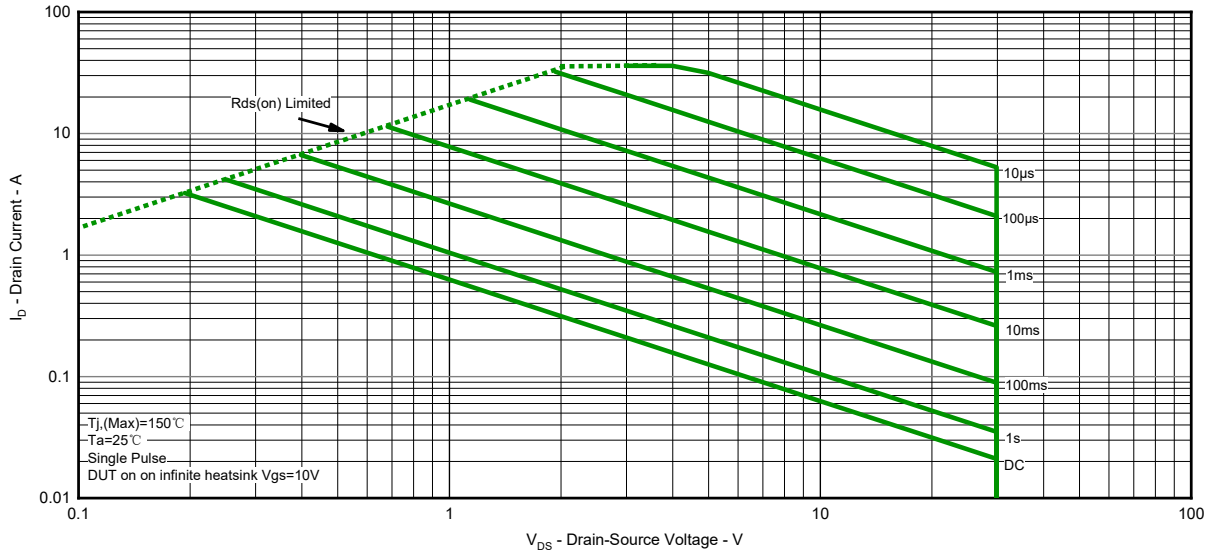
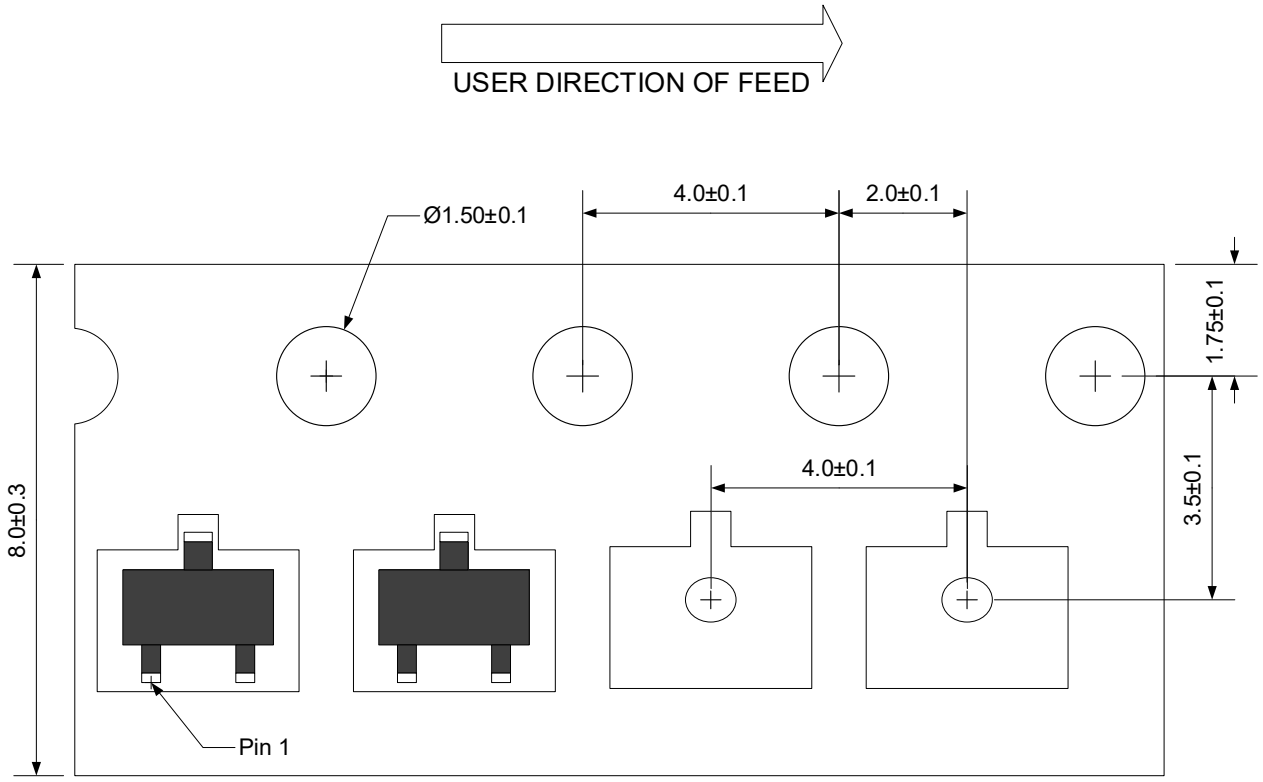


Fig.7 Safe Operation Area

Ordering information

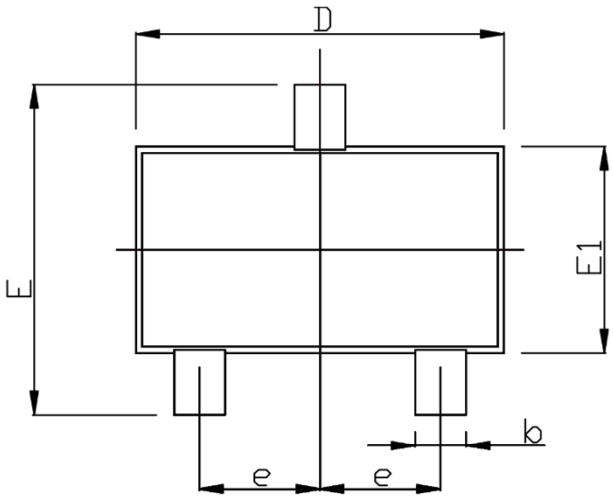
Device	Package	Reel	Shipping
PNMT30V6A	SOT-23 (Pb-Free)	7"	3000 / Tape & Reel

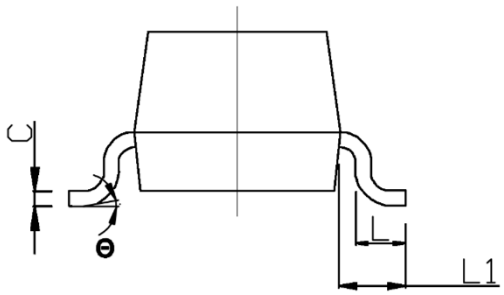
Load with information

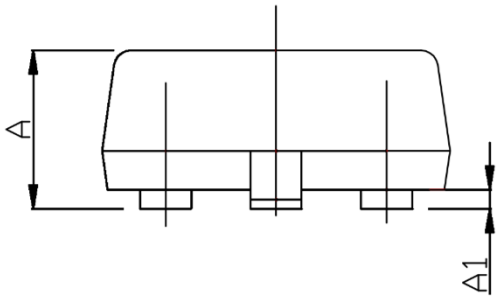


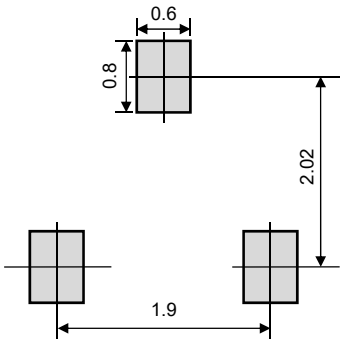
Unit:mm

Product dimension (SOT-23)









Suggested PCB Layout

Unit:mm

Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	-	1.35	-	0.053
A1	0.04	0.15	0.002	0.006
b	0.30	0.50	0.012	0.020
c	0.08	0.21	0.003	0.008
D	2.72	3.12	0.107	0.123
E	2.10	2.64	0.083	0.104
E1	1.10	1.50	0.043	0.059
e	0.95 BSC		0.037 BSC	
L	0.20	0.48	0.008	0.019
L1	0.50	0.60	0.020	0.024
θ	0°	8°	0°	8°

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