Prisemi®

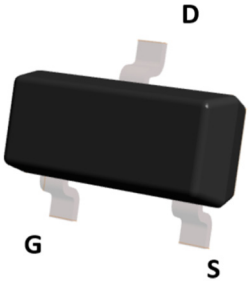
PNMT7002E

N-Channel MOSFET

Description

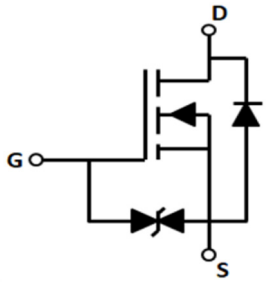
The MOSFET provide the best combination of fast switching , low on-resistance and cost-effectiveness.

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



Top View

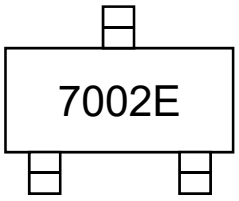
MOSFET Product Summary		
V_{DS}(V)	$R_{DS(on)}$(Ω)	I_D(A)
60	4@V_{GS} = 10V	0.34
	5@V_{GS} = 5V	



Circuit Diagram

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}	60	V
Gate-source Voltage	V_{GS}	±20	V
Drain Current	I_D	115	mA
Pulsed Drain Current[1)]	I_{DM}	1.5	A
Total Power Dissipation @ T_A=25℃	P_D	200	mW
Thermal Resistance Junction-to-Ambient @ Steady State[2)]	$R_{\theta JA}$	215	℃/W
Junction and Storage Temperature Range	T_J,T_{STG}	-55~+150	℃

Notes:
1) Pulse Test: Pulse Width≤300μs,Duty cycle ≤2%.
2) Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V, I_D = 250μA	60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 60V,V_{GS} = 0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V	-	-	±1	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1	-	2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 500mA	-	3.3	4.0	Ω
		V_{GS} = 5.0V, I_D = 50mA	-	3.5	5.0	
Diode Forward Voltage	V_{SD}	I_S = 250mA,V_{GS} = 0V	-	-	1.0	V
Maximum Body-Diode Continuous Current	I_S		-	-	340	mA
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{DS} = 30V,V_{GS} = 0V, f = 1MHz	-	18	-	pF
Output Capacitance	C_{oss}		-	12	-	
Reverse Transfer Capacitance	C_{rss}		-	7	-	
Switching Parameters						
Total Gate Charge	Q_g	V_{GS} = 10V,V_{DS} = 30V, I_D = 0.3A	-	1.7	2.4	nC
Turn-on Delay Time	$t_{D(on)}$	V_{GS} = 10V,V_{DD} = 30V, I_D = 300mA, R_{GEN} = 6Ω	-	5	-	ns
Turn-off Delay Time	$t_{D(off)}$		-	17	-	
Reverse recovery Time	t_{rr}	V_{GS} = 0V,I_S = 300mA, V_R = 25V, dI_S/dt = - 100A/μs	-	30	-	ns

Typical Characteristics

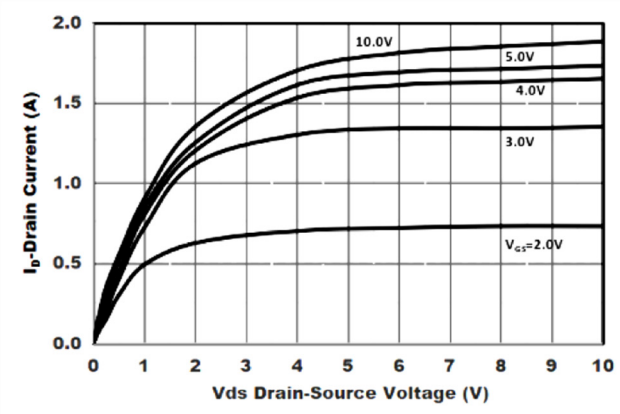


Figure1. Output Characteristics

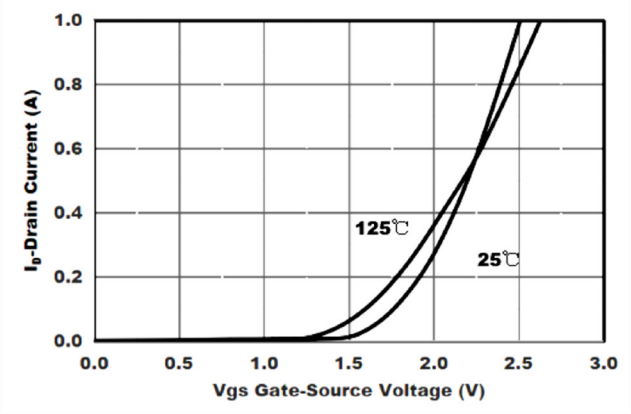


Figure2. Transfer Characteristics

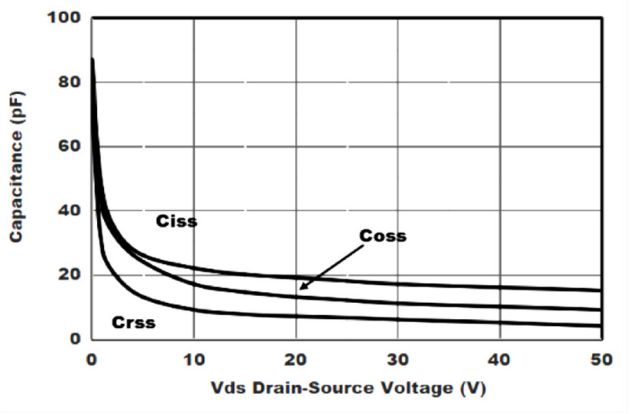


Figure3. Capacitance Characteristics

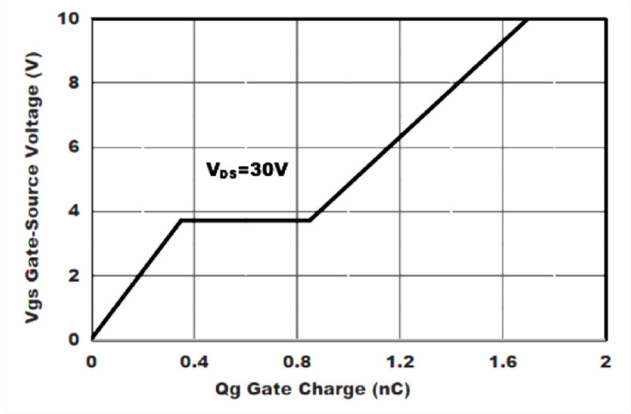


Figure4. Gate Charge

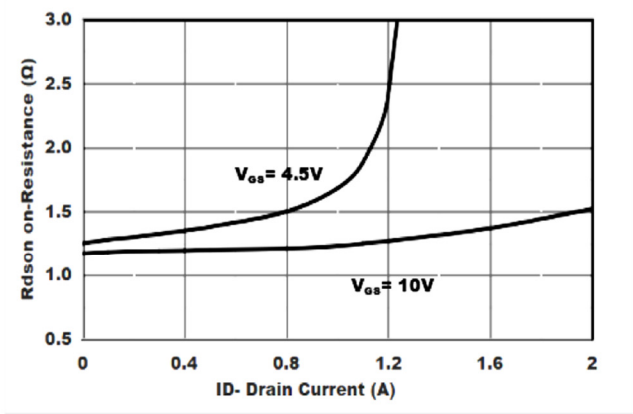


Figure5. Drain-Source on Resistance

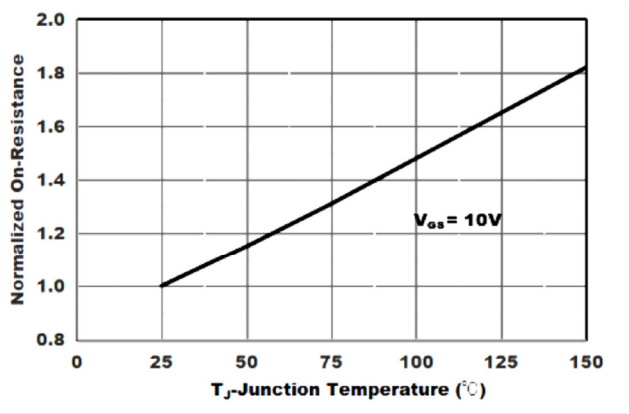


Figure6. Drain-Source on Resistance

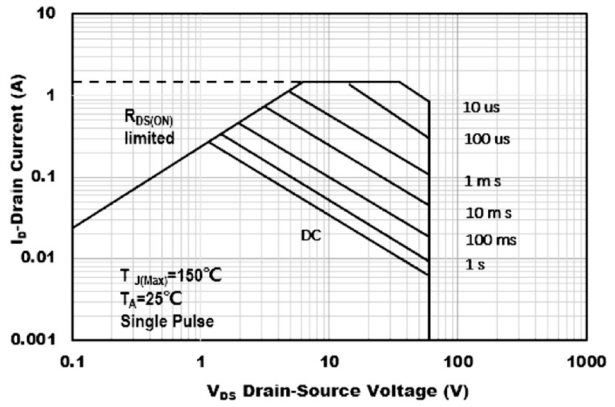


Figure7. Safe Operation Area

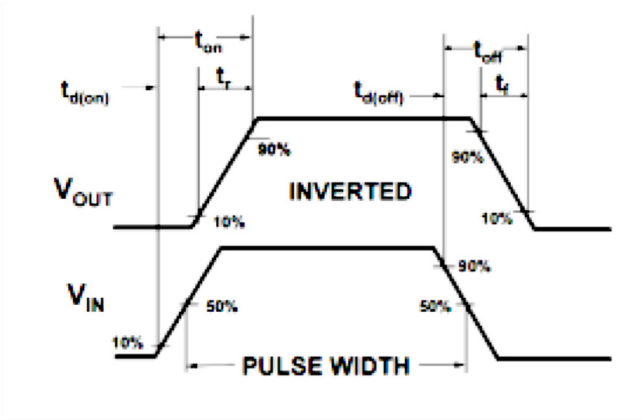
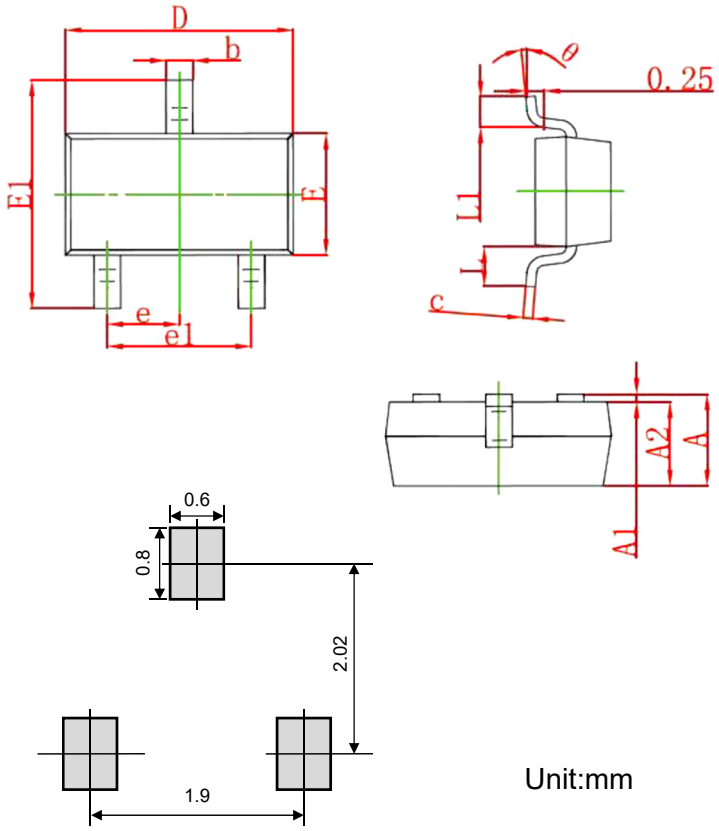


Figure8. Switching wave

Product dimension (SOT-23)



Unit:mm

Suggested PCB Layout

Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 Typ.		0.037 Typ.	
e1	1.800	2.000	0.071	0.079
L	0.550 Ref.		0.022 Ref.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Ordering information

Device	Package	Reel	Shipping
PNMT7002E	SOT-23 (Pb-Free)	7"	3000 / Tape & Reel

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