

Feature

This device is Pb-Free, Halogen Free/BFR Free and RoHS compliant.

PNMT8N1F is composed by a transistor and a MOSFET

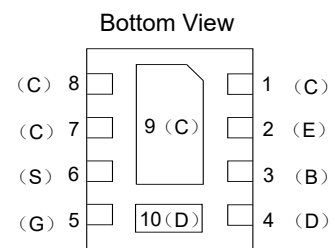
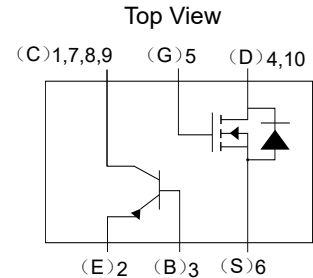
Transistor:

- Very low collector to emitter saturation voltage
- DC current gain >100
- 3A continuous collector current
- PNP epitaxial planar silicon transistor

MOSFET:

MOSFET Product Summary		
V _{DS} (V)	R _{DS(on)} (Ω)	I _D (mA)
20	0.3@ V _{GS} =4.0V	±300
	0.45@ V _{GS} =2.5V	
	0.6@ V _{GS} =1.8V	

- Transistor


Electrical characteristics per line@25°C (unless otherwise specified)

Parameter	Symbol	Conditions	Value	Units
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	I _C = -10mA	-30	V
Collector-Base Breakdown Voltage	V _{(BR)CBO}	I _C = -0.1mA	-40	V
Emitter -Base Breakdown Voltage	V _{(BR)EBO}	I _E = -0.1mA	-5	V
Collector Current	I _C		-3	A
Collector Peak Current	I _{CM}		-6	A
Base Current	I _B		-0.2	A
Base Peak Current	I _{BM}		-0.5	A
Total Dissipation @25°C	P _{tot}		2.5	W
Storage Temperature	T _{stg}		-65~150	°C
Operating Temperature	T _j		-40~125	°C
Junction-to-Ambient Thermal Resistance ⁽¹⁾	R _{θJA}		50	°C/ W

Note 1: Surface mounted on FR-4 Board using 1 square inch pad size, 1oz copper

Absolute maximum rating@25°C

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
DC Current Gain	h_{FE}	$I_C=-100mA, V_{CE}=-2V$	200	-	-	-
		$I_C=-2A, V_{CE}=-2V$	100	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-0.1A, I_B=-10mA$	-	-	-25	mV
		$I_C=-1A, I_B=-20mA$	-	-	-210	
		$I_C=-1.5A, I_B=-50mA$	-	-	-230	
		$I_C=-2.5A, I_B=-150mA$	-	-	-300	
		$I_C=-3.5A, I_B=-350mA$	-	-	-350	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-1A, I_B=-0.05mA$	-	-	-1.1	V
Collector Cut-off Current ($I_E=0$)	I_{CBO}	$V_{CB}=-40V$	-	-	-0.1	μA
		$V_{CB}=-30V, T_C=125^\circ C$	-	-	-20	
Emitter Cut-off Current ($I_C=0$)	I_{EBO}	$V_{EB}=-5V$	-	-	-0.1	μA

➤ MOSFET

Electrical characteristics per line@25°C (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=1mA, V_{GS}=0V$	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 8V$	-	-	± 10	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=10V, I_D=1mA$	0.5	-	1.1	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.0V, I_D=300mA$	-	0.3	0.5	Ω
		$V_{GS}=2.5V, I_D=200mA$	-	0.45	0.7	Ω
		$V_{GS}=1.8V, I_D=150mA$	-	0.6	0.9	Ω
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{GS}=0V, V_{DS}=10V,$ $f=1MHz$	-	30	-	pF
Output Capacitance	C_{DSS}		-	13	-	pF
Reverse Transfer Capacitance	C_{RSS}		-	13	-	pF
SWITCHING PARAMETERS						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=10V, V_{GS}=4.0V,$ $R_G=10\Omega, R_L=67\Omega$ $I_D=150mA$	-	7	-	ns
Turn-Off Delay Time	$t_{d(off)}$		-	23	-	ns

Absolute maximum rating@25°C

Rating		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	± 8	V
Drain Current	Continuous	I_D	0.3	A
	Pulsed	I_D	0.6	A
Total Power Dissipation	$T_A=25^\circ\text{C}$	P_D	150	mW

Typical Characteristics

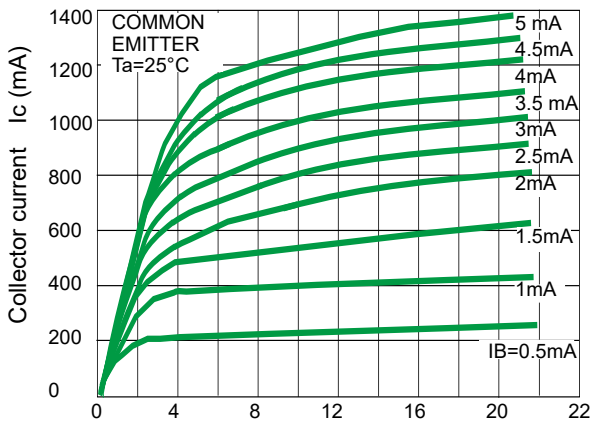


Fig1. Collector-emitter voltage V_{CE} (V)

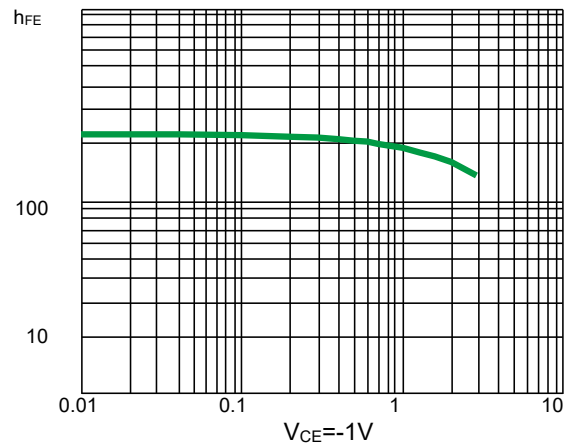


Fig2. DC Current Gain

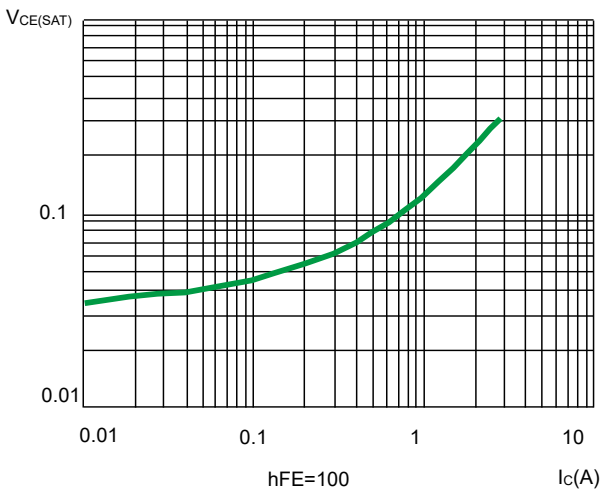


Fig 3. Collector-Emitter Saturation Voltage

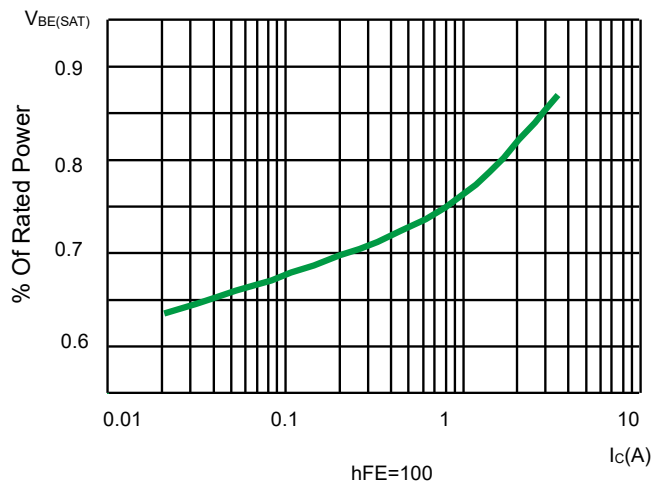


Fig4. Base-Emitter Saturation Voltage

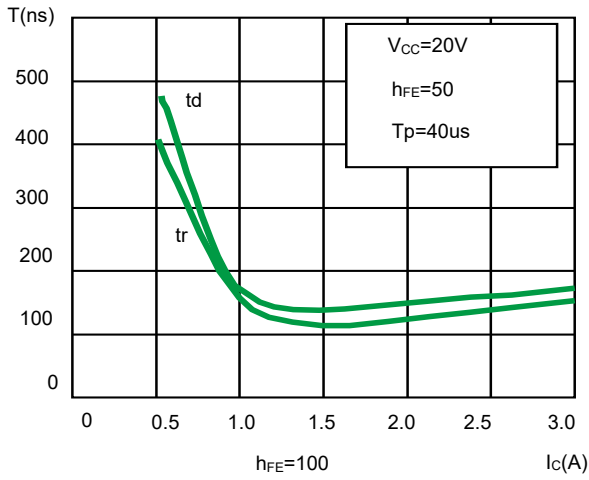


Fig 5. Switching Times Resistive Load

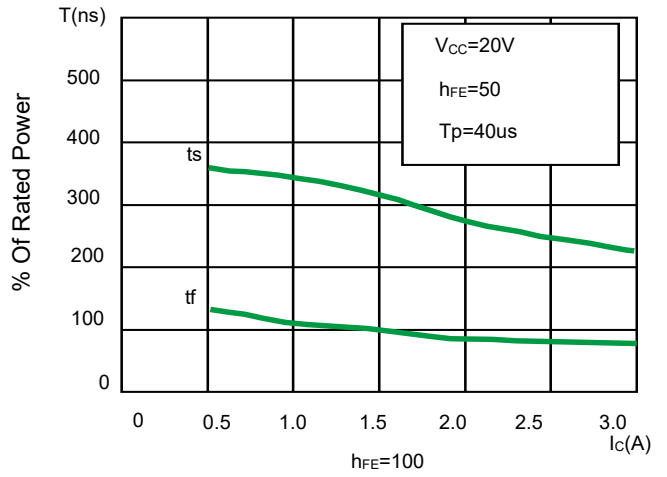


Fig 6. Switching Times Resistive Load

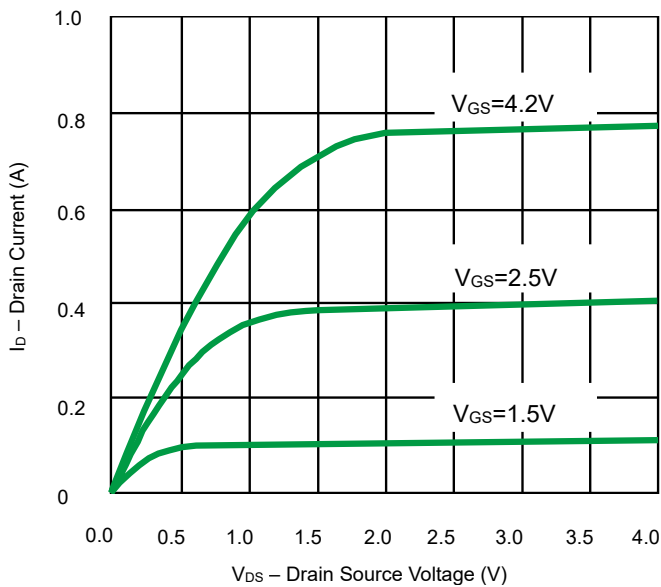


Fig 7. Output Characteristics

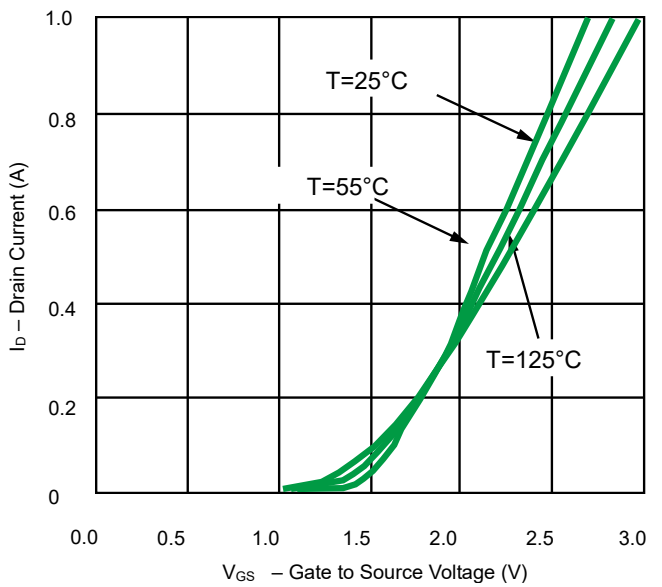


Fig 8. Transfer Characteristics

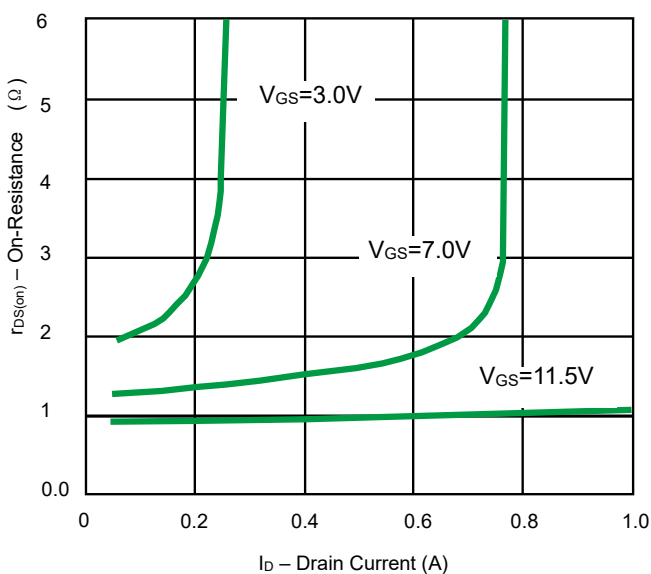


Fig 9. On-Resistance vs. Drain Current

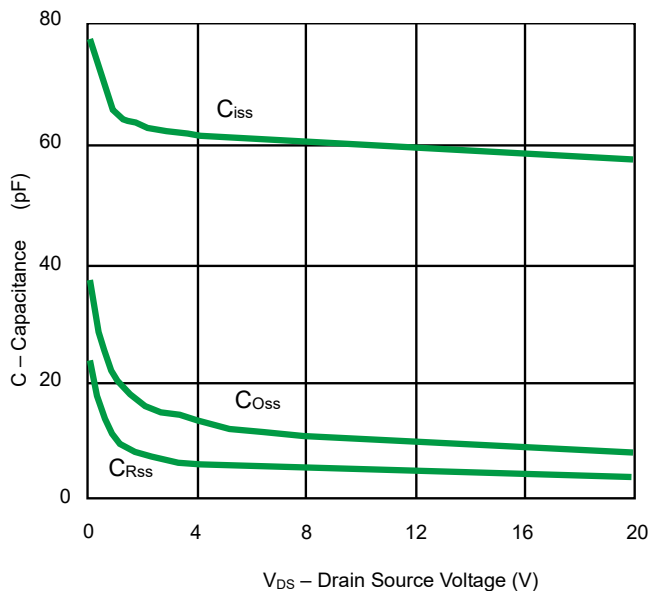
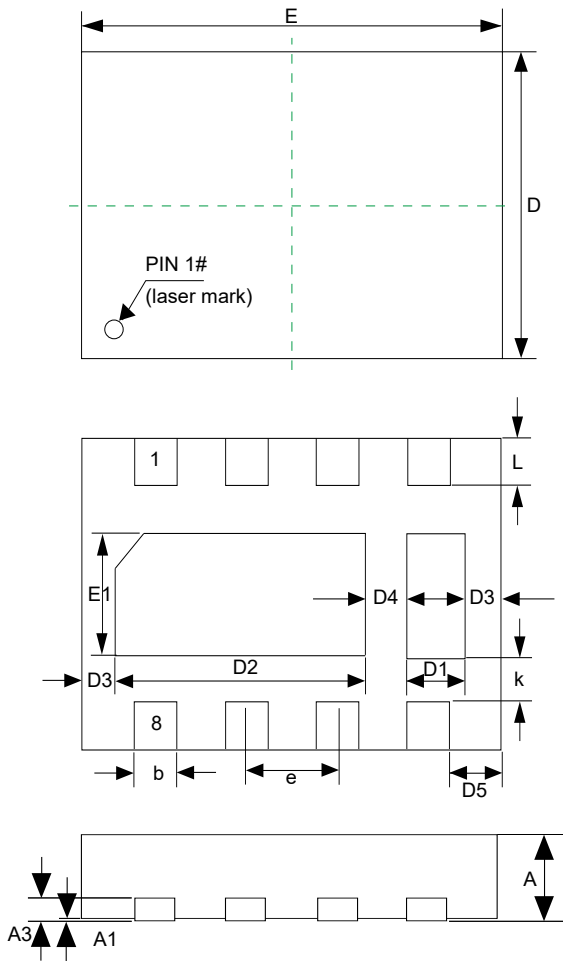
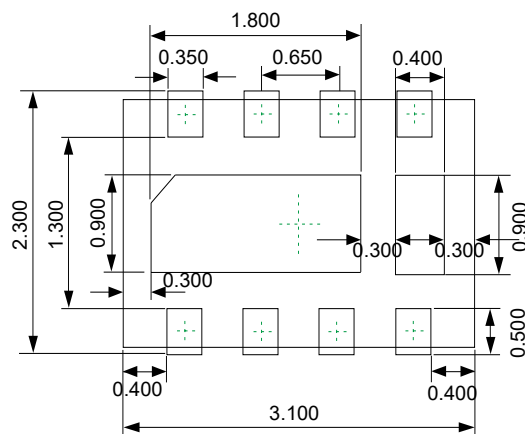


Fig 10. Capacitance

Product dimension DFN3020-8L



Dim	Millimeters	
	MIN	MAX
A	0.55	0.65
A1	--	0.05
A3	0.20REF	
D	1.90	2.10
E	2.90	3.10
D1	0.30	0.50
E1	0.70	0.90
D2	1.70	1.90
D3	0.20	0.40
D4	0.20	0.40
D5	0.25	0.45
b	0.25	0.35
e	0.65TYP	
k	0.20MIN	
L	0.25	0.35

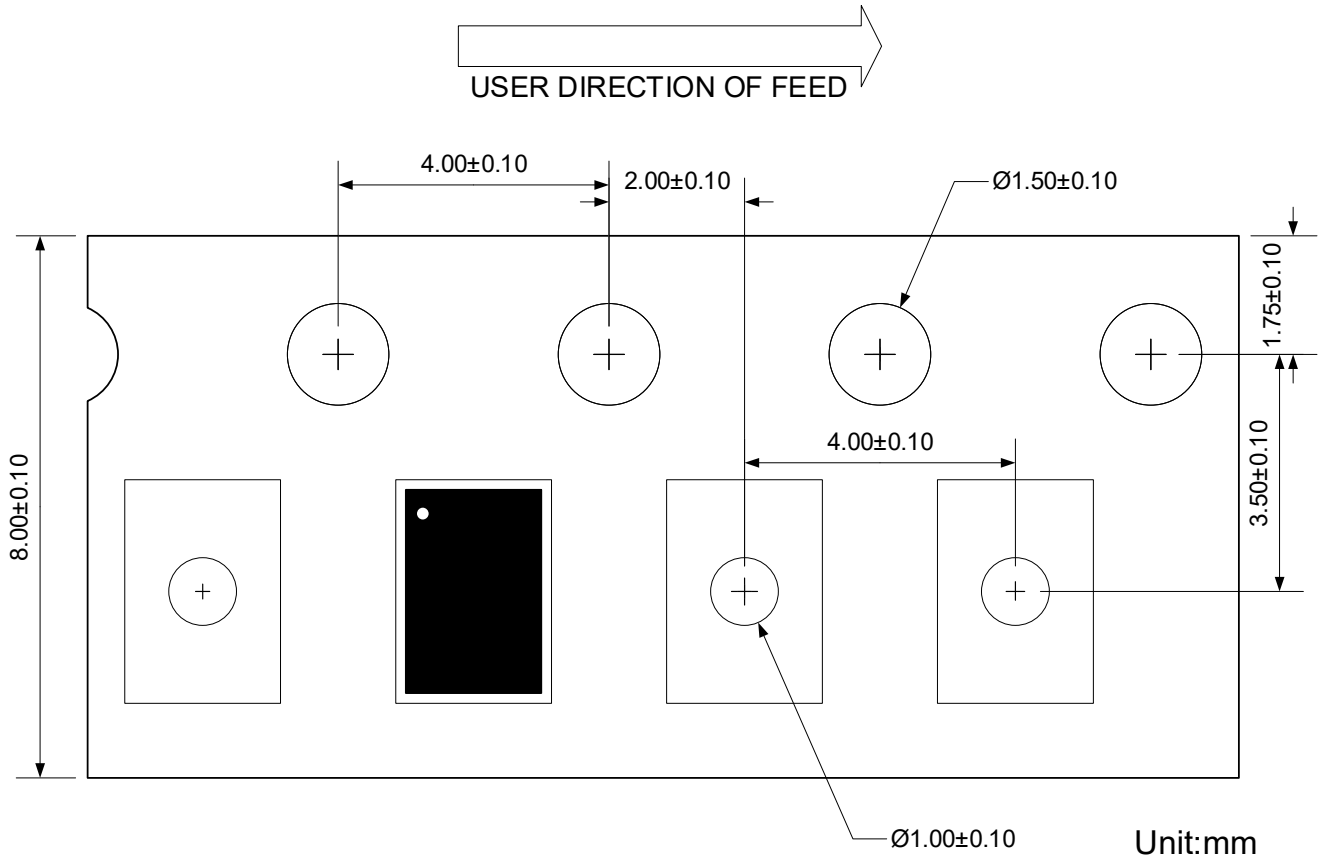


Unit:mm


Ordering information

Device	Package	Shipping
PNMT8N1F	DFN3020-8L	3000 / Tape & Reel

Load with information




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