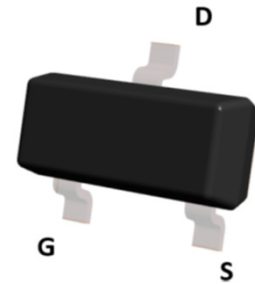


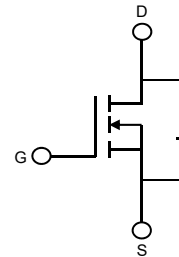
Description

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

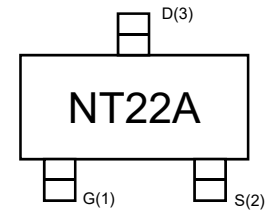
- Trench Power MV MOSFET technology
- Voltage controlled small signal switch
- Low input Capacitance
- Fast Switching Speed
- Low Input / Output Leakage



Top View



Circuit Diagram



Marking (Top View)

MOSFET Product Summary		
$V_{DS}(V)$	$R_{DS(on)}(m\Omega)$	$I_D(A)$
20	36@ $V_{GS}=4.5V$	2.0

Applications

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

Absolute maximum rating@25°C

Rating	Symbol	Value	Units
Drain-source Voltage	V_{DS}	20	V
Gate-source Voltage	V_{GS}	± 10	V
Drain Current	I_D	2.0	A
Pulsed Drain Current	I_{DM}	9.0	A
Total Power Dissipation ¹⁾	P_D	0.8	W
Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	°C

Thermal Resistance

Parameter	Symbol	Min	Typ	Max	Unit
Thermal Resistance, Junction-to-Case ²⁾	$R_{\theta JC}$	-	29.8	-	°C/W
Thermal Resistance, Junction-to-Ambient ²⁾	$R_{\theta JA}$	-	123	-	°C/W

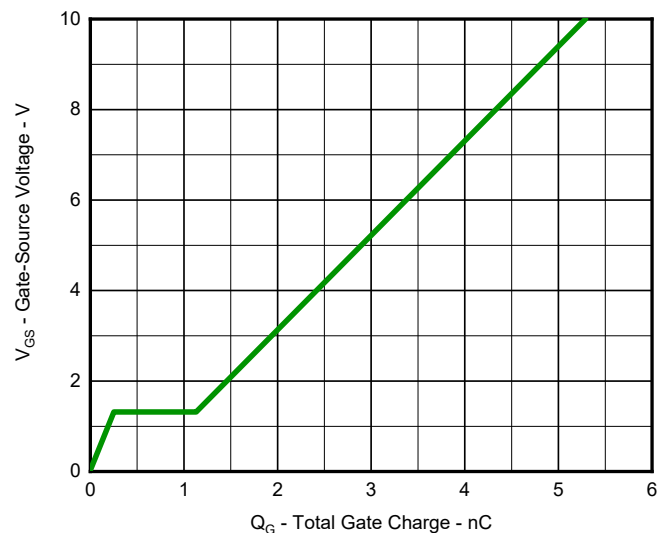
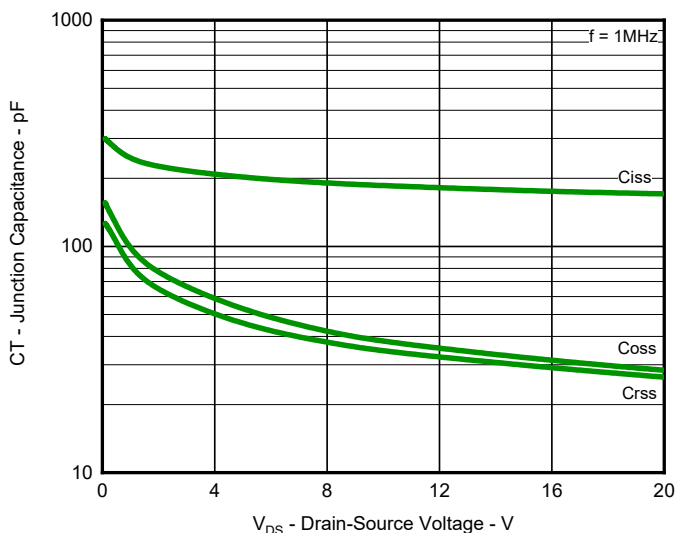
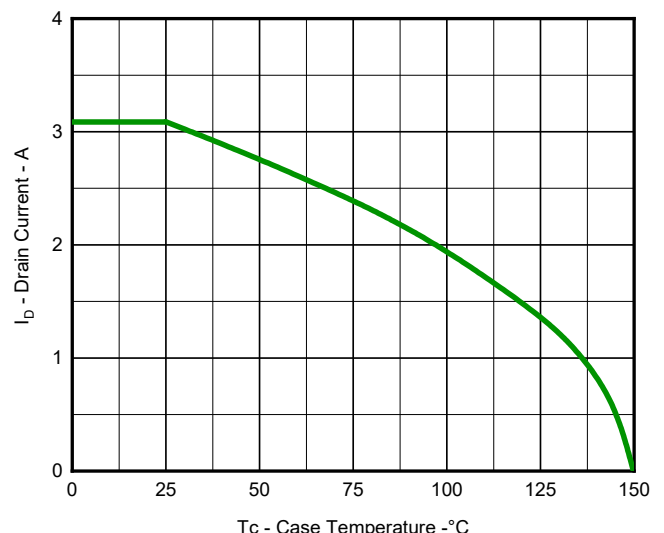
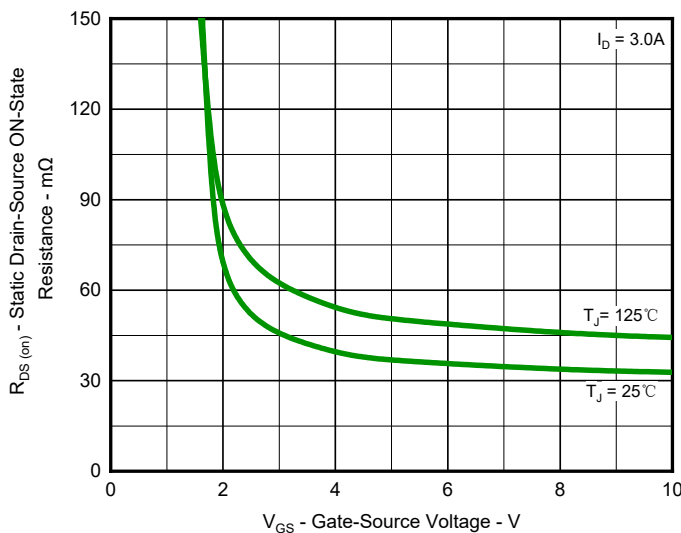
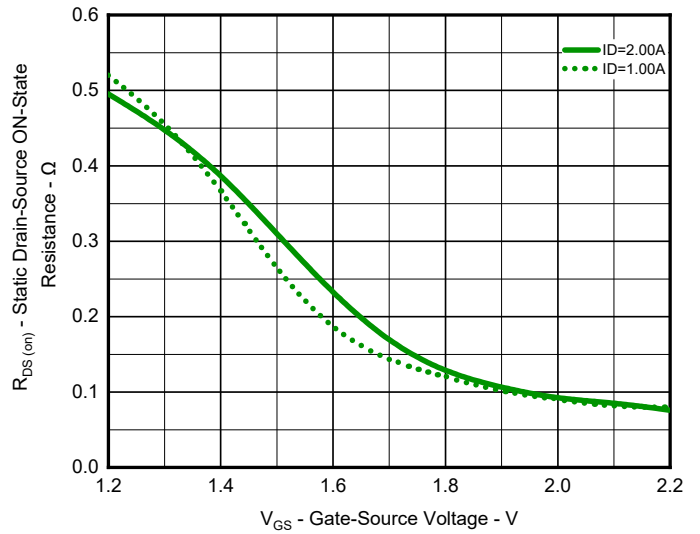
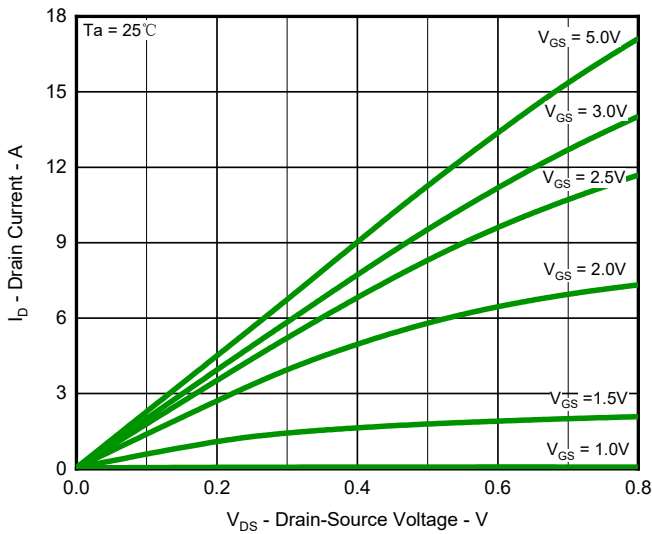
Notes:

1. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout
2. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper pad layout

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
OFF Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$	-	-	1.0	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS} = \pm 10V, V_{DS} = 0V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.45	0.7	1.1	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 3A$	-	36	45	m Ω
		$V_{GS} = 2.5V, I_D = 2A$	-	50	70	
Gate resistance	R_g	$V_{DS}=0V, V_{GS}=0V, f=1MHz$	-	4.5	-	Ω
Diode Forward Voltage	V_{SD}	$V_{GS} = 0V, I_S = 1A$	-	0.76	1.2	V
Maximum Body-Diode Continuous Current	I_S	-	-	-	1.6	A
Dynamic Parameters						
Input Capacitance	C_{iss}	$V_{DS} = 10V, V_{GS} = 0V,$ $f = 1MHz$	-	185	-	pF
Output Capacitance	C_{oss}		-	37	-	
Reverse Transfer Capacitance	C_{rss}		-	34	-	
Switching Parameters						
Turn-on Delay Time	$t_{d(on)}$	$V_{DS} = 10V, I_D = 1A,$ $V_{GS} = 4.5V, R_G = 6\Omega$	-	5.0	-	ns
Turn-on Rise Time	t_r		-	6.0	-	
Turn-Off Delay Time	$t_{d(off)}$		-	23	-	
Turn-Off Fall Time	t_f		-	10	-	
Total Gate Charge	Q_g	$V_{DS} = 10V, I_D = 3.6A,$ $V_{GS} = 4.5V$	-	9.0	-	nC
Gate-Source Charge	Q_{gs}		-	0.4	-	
Gate-Drain Charge	Q_{gd}		-	1.3	-	

Typical Characteristics



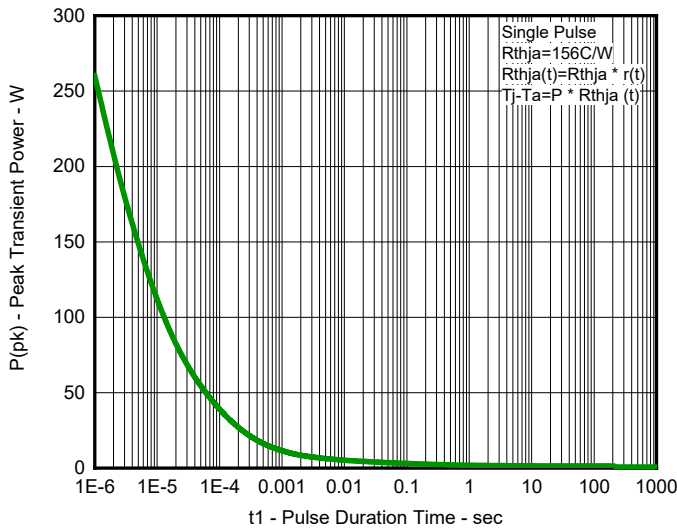


Fig.7 Single Pulse Maximum Power Dissipation

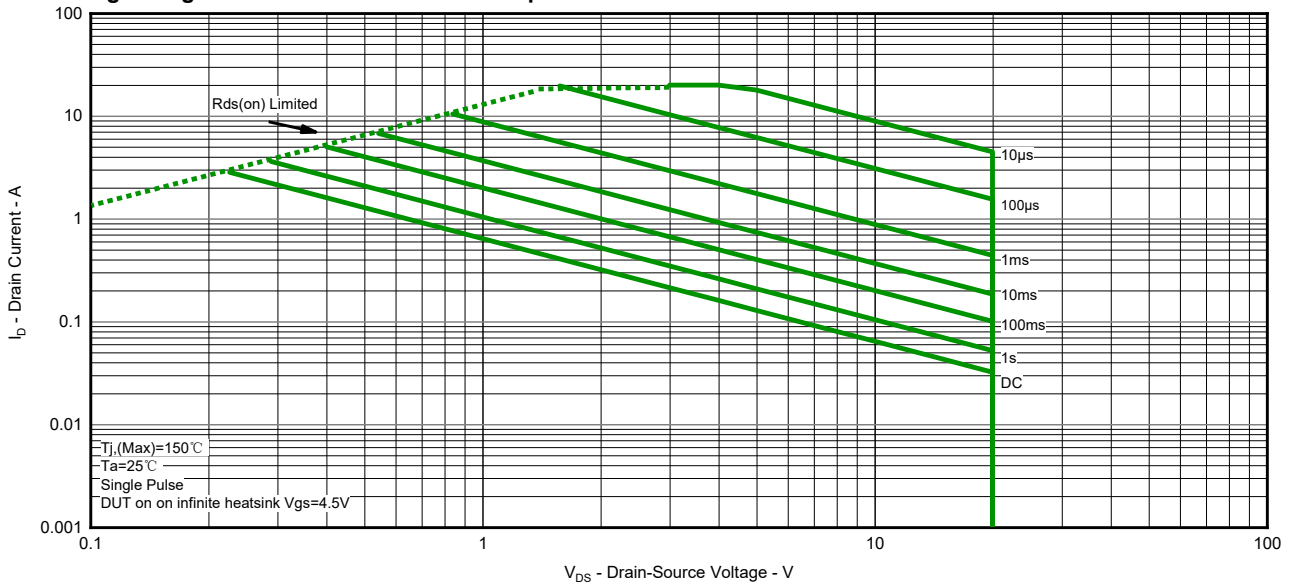


Fig.8 Safe Operation Area

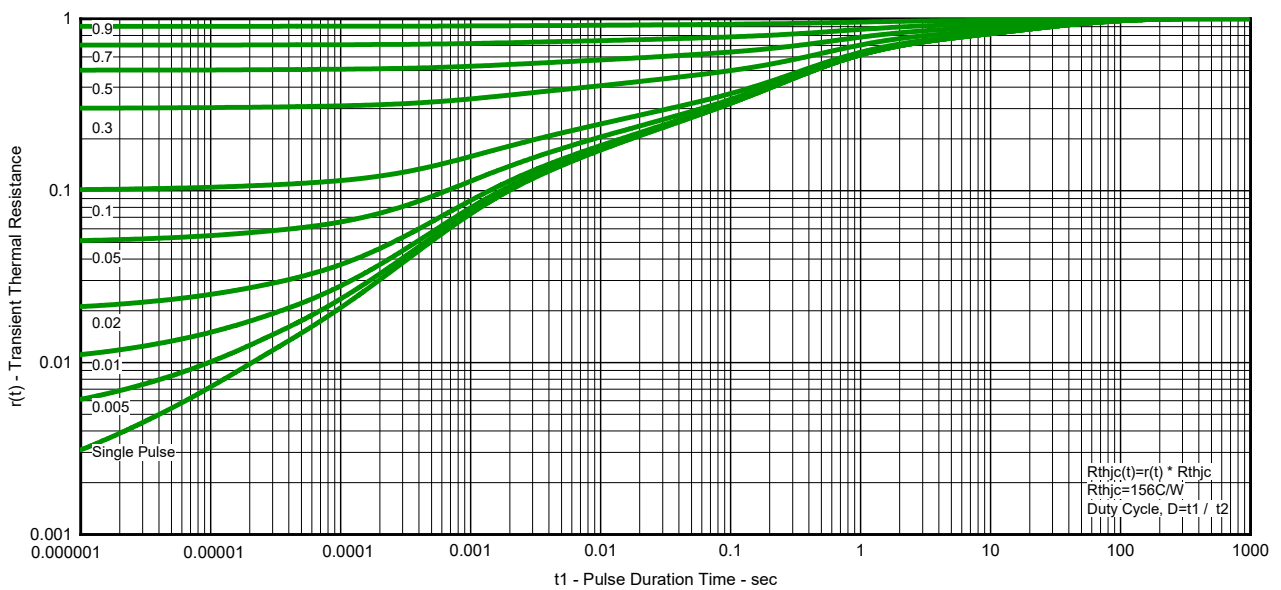


Fig.9 Transient Thermal Resistance

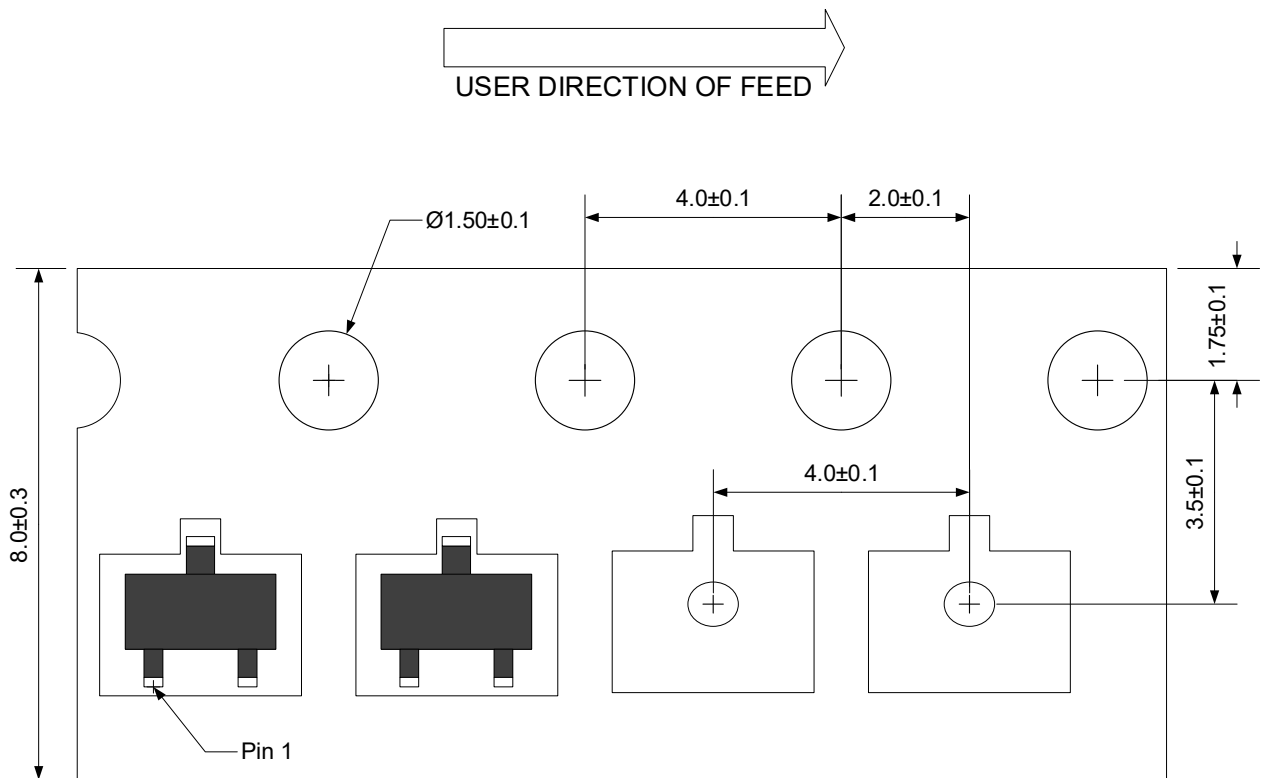
N-Channel MOSFET

PNMT20V2A

Ordering information

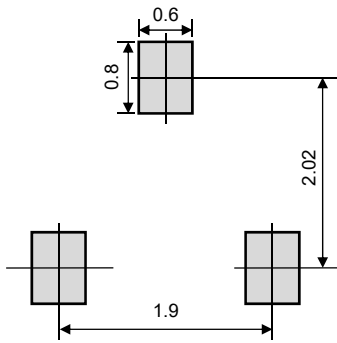
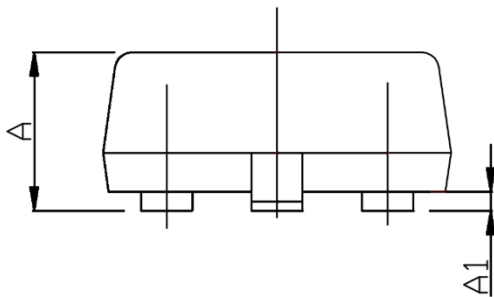
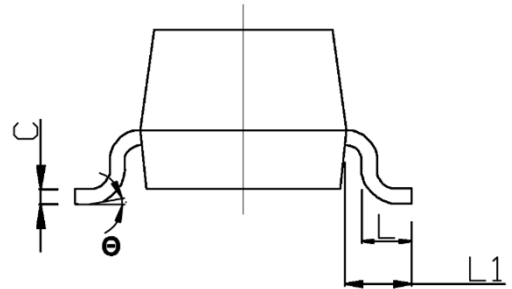
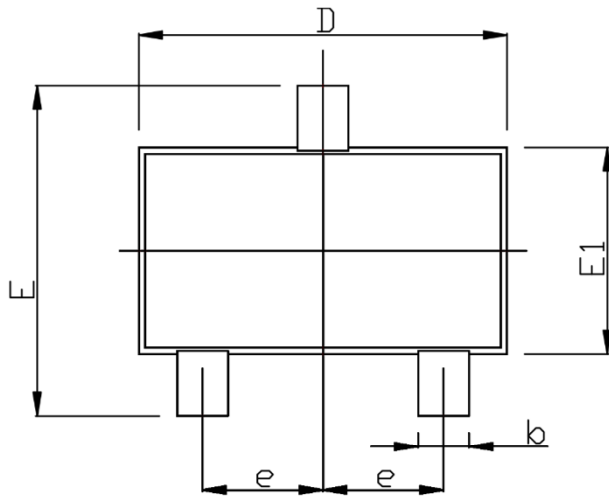
Device	Package	Reel	Shipping
PNMT20V2A	SOT-23 (Pb-Free)	7"	3000 / Tape & Reel

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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