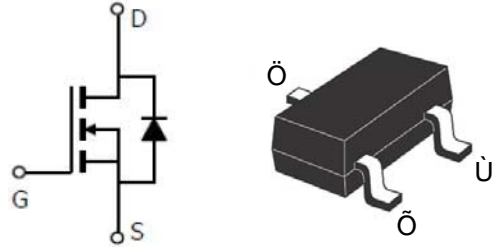


N-Channel Enhancement Mode Power MOSFET
● Features

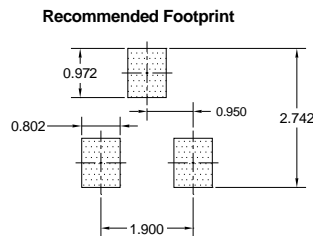
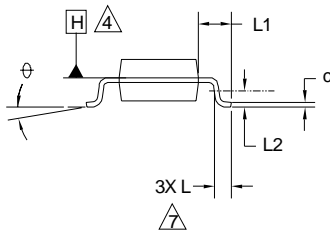
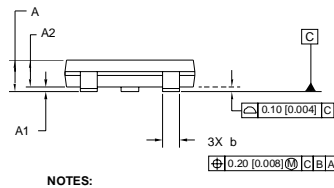
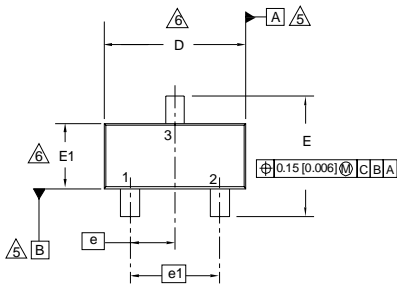
$V_{DS} = 100V$
 $I_D = 2A$
 $R_{DS(ON)} \leq 240m\Omega (V_{GS} = 10V)$

● General Description

The **ATNM03S100S** uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications. The package form is SOT-23, which accords with the RoHS standard.

● Pin Configurations

● Package Information

SOT-23



SYMBOL	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.89	1.12	0.035	0.044
A1	0.01	0.10	0.0004	0.004
A2	0.88	1.02	0.035	0.040
b	0.30	0.50	0.012	0.020
c	0.08	0.20	0.003	0.008
D	2.80	3.04	0.110	0.120
E	2.10	2.64	0.083	0.104
E1	1.20	1.40	0.047	0.055
e	0.95	BSC	0.037	BSC
e1	1.90	BSC	0.075	BSC
L	0.40	0.60	0.016	0.024
L1	0.54	REF	0.021	REF
L2	0.25	BSC	0.010	BSC
\varnothing	0	8	0	8



N-Channel Enhancement Mode Power MOSFET

- Absolute Maximum Ratings (@TA=25°C unless otherwise noted)**

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DSS}	100	V
Gate Source Voltage	V_{GSS}	±20	V
Drain Current (Continuous) *AC	I_D	2	A
Drain Current (Pulse) *B	I_{DM}	5	A
Power Dissipation	P_D	1.25	W
Operating Temperature/ Storage Temperature	T_J/T_{STG}	-55~175	°C

- Thermal Characteristics**

Parameter	Symbol	Ratings	Unit
Thermal Resistance ,Junction-to-Ambient	$R_{\theta JA}$	100	°C/W

- Electrical Characteristics (@TA=25°C unless otherwise noted)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	100	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$	--	--	1	μA
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	1.2	--	2.5	V
Gate Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	--	--	±100	nA
Drain-Source On-state Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=3A$	--	--	240	m Ω
Forward Transconductance	g_{fs}	$I_{SD}=1A, V_{DS}=5V$	1	--	--	S
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DD}=50V, I_D=1.3A$	--	5.2	--	nC
Gate- Source Charge	Q_{gs}		--	0.75	--	nC
Gate- Drain Charge	Q_{gd}		--	1.4	--	nC
Turn-on Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DD}=50V, I_D=1.3A$ $R_L=39\Omega, R_{GEN}=1\Omega$	--	6	--	ns
Turn-on Rise Time	t_r		--	10	--	ns
Turn-off Delay Time	$t_{d(off)}$		--	10	--	ns
Turn-off Fall Time	t_f		--	6	--	ns
Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=50V, f=1MHz$	--	190	--	pF
Output Capacitance	C_{oss}		--	22	--	pF
Reverse Transfer Capacitance	C_{rss}		--	13	--	pF



N-Channel Enhancement Mode Power MOSFET

- Reverse Diode Characteristics (@TA=25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Continuous Diode Forward Current	I _S	V _G =V _D =0V , Force Current	--	--	2	A
Diode Forward Voltage	V _{SD}	I _{SD} =1.3A, V _{GS} =0V	--	--	1.2	V

A: The value of R_{θJA} is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with TA=25C. The value in any given application depends on the user's specific board design.

B: Repetitive rating, pulse width limited by junction temperature .

C: The current rating is based on the t< 10s junction to ambient thermal resistance rating.



N-Channel Enhancement Mode Power MOSFET

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

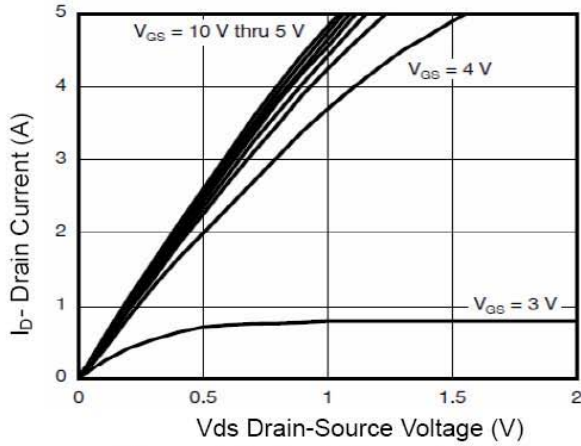


Figure 1 Output Characteristics

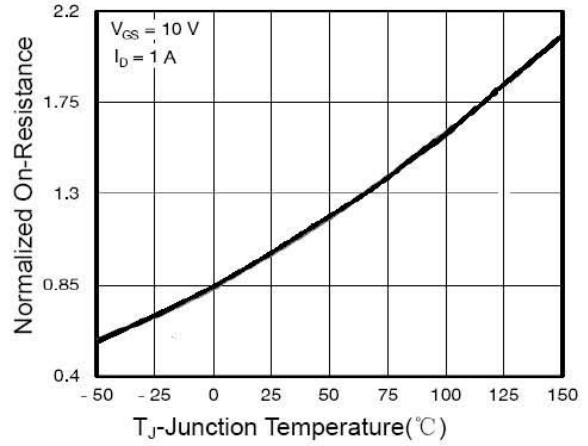


Figure 4 Rdson-Junction Temperature

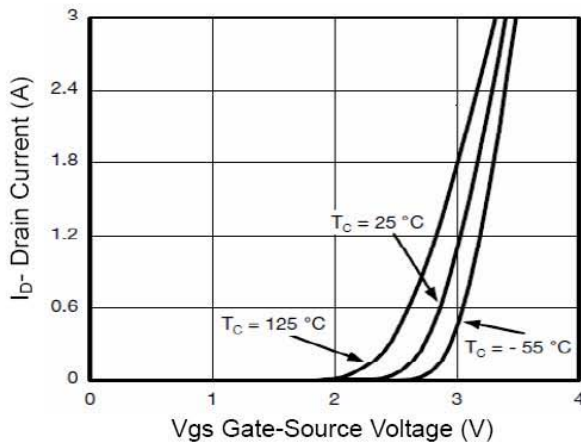


Figure 2 Transfer Characteristics

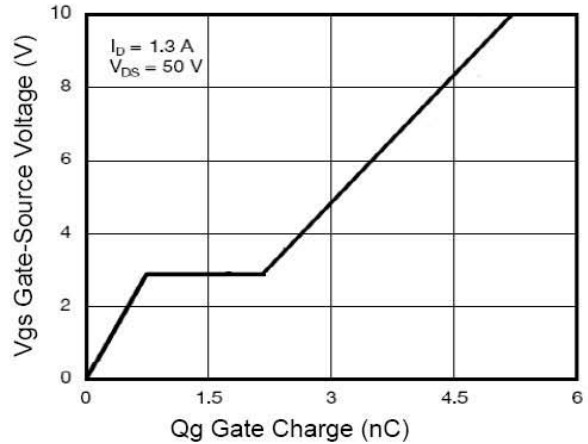


Figure 5 Gate Charge

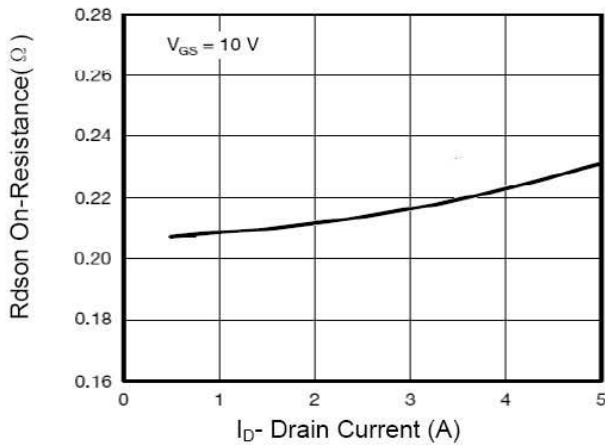


Figure 3 Rdson- Drain Current

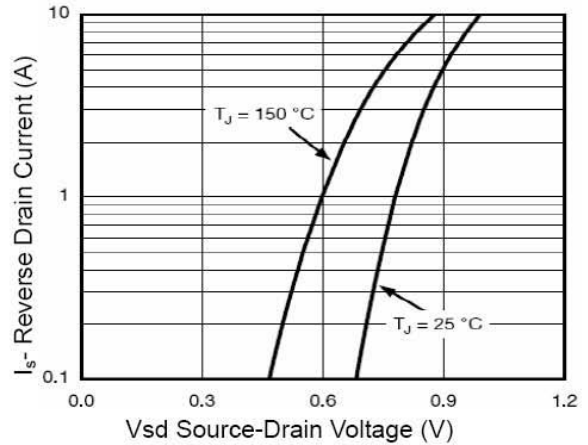


Figure 6 Source- Drain Diode Forward



N-Channel Enhancement Mode Power MOSFET

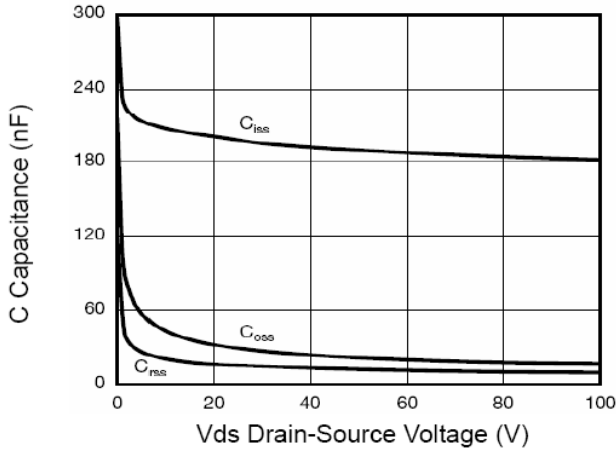


Figure 7 Capacitance vs Vds

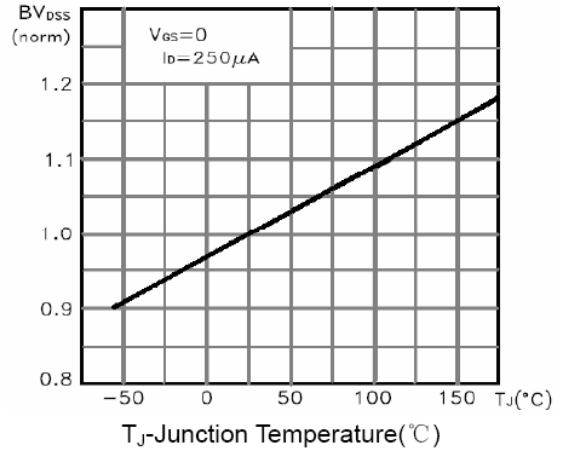


Figure 9 BV_{DSS} vs Junction Temperature

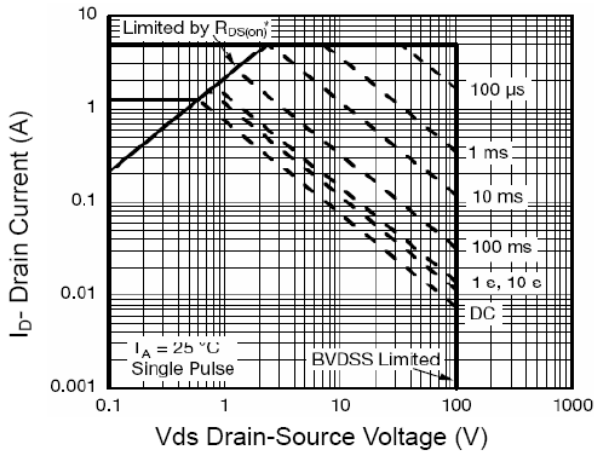


Figure 8 Safe Operation Area

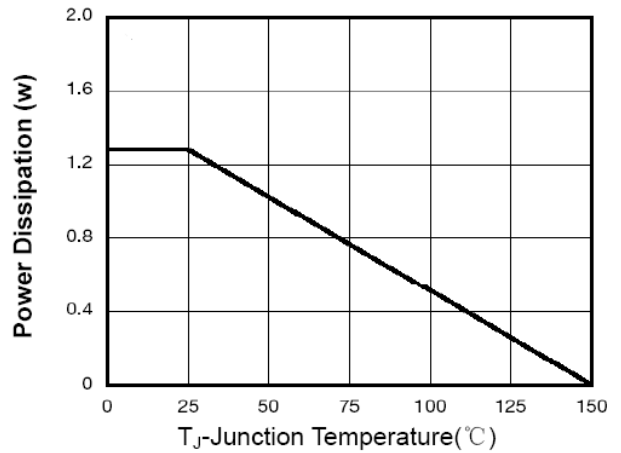


Figure 10 Power De-rating

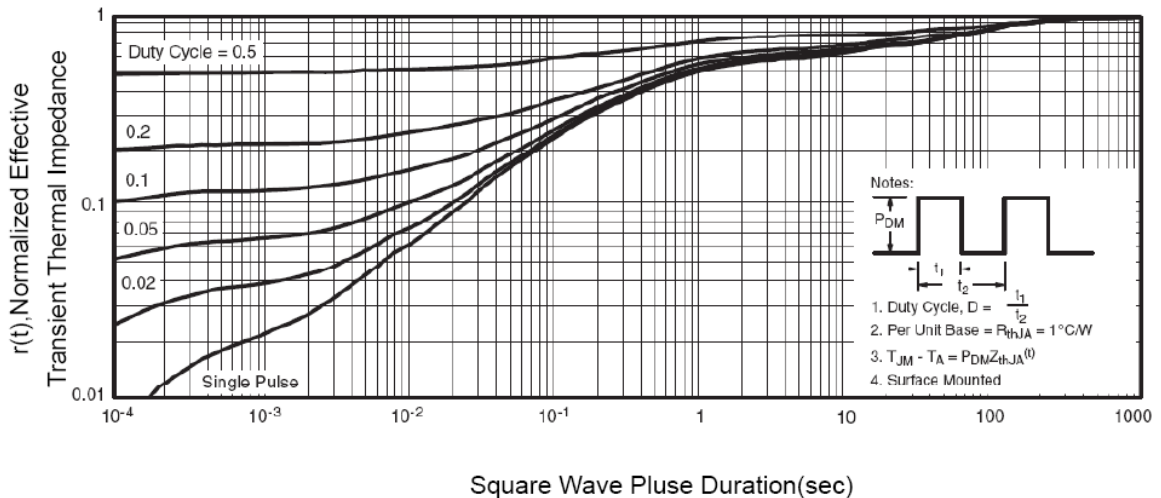
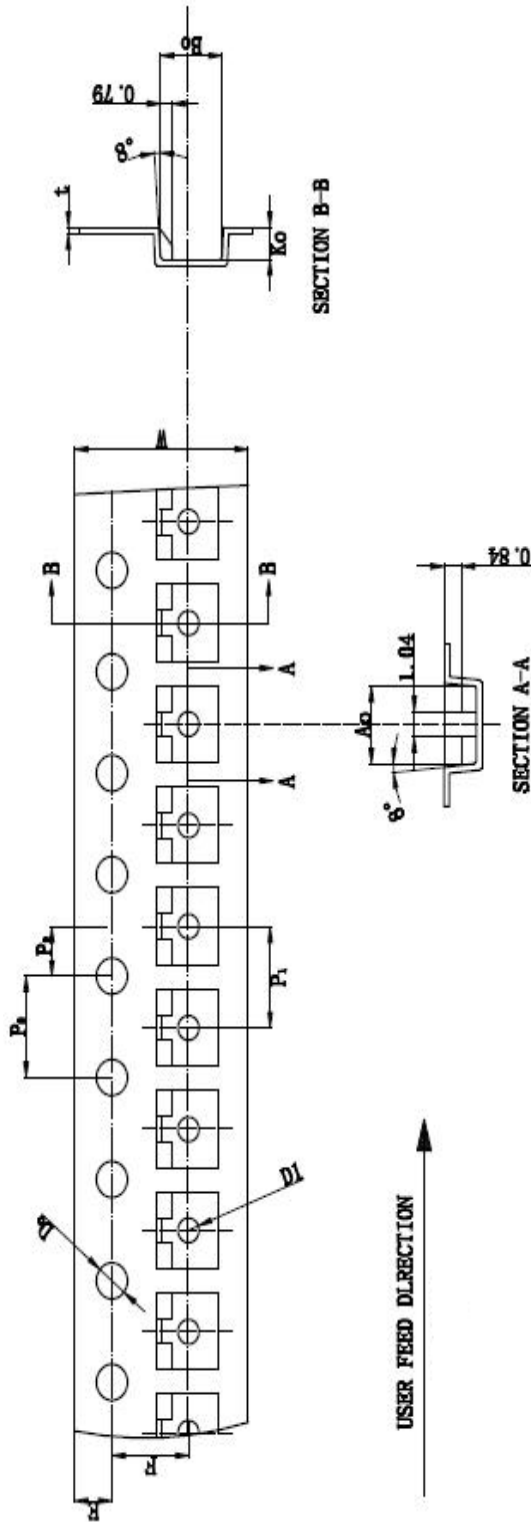


Figure 11 Normalized Maximum Transient Thermal Impedance



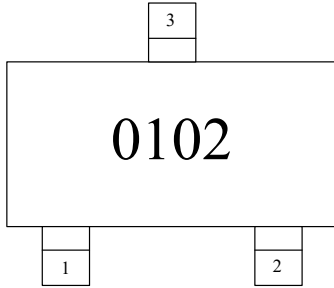
Tape and Reel Specification



W	P	E	F	D	D1	Po	Po10	P2	A0	B0	K0	T
8.00	4.00	1.75	3.50	1.50	1.00	4.00	40.00	2.00	3.15	2.77	1.22	0.20
+0.3/-0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.2	±0.05	±0.1	±0.1	±0.1	±0.02



Marking Codes



Ordering Information

Part Number	Working Voltage	Quantity Per Reel	Reel Size
TNM02K100K	100V	3,000	7 Inch