

DESCRIPTION

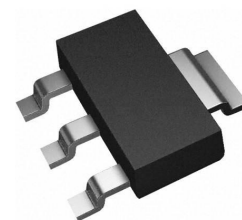
The MSN5100Z uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for use in a wide variety of applications.

FEATURES

- Lead free product is acquired
- Special process technology for high ESD capability
- High density cell design for ultra low $R_{DS(on)}$
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation

APPLICATION

- Power switching application
- Hard switching and high frequency circuits
- Uninterruptible power supply

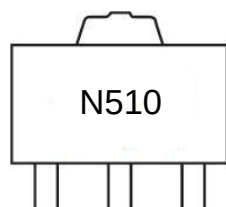


SOT-223

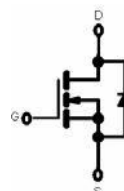
SOT-223 Plastic-Envelope MOSFETS

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
100V	140mΩ@ 10V	5A

MARKING



Equivalent Circuit



Maximum ratings ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	5	A
Pulsed Drain Current (note 1)	I_{DM}	20	A
Power Dissipation	P_D	0.5	W
Thermal Resistance from Junction to Ambient (note 2)	$R_{\theta JA}$	250	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~+150	$^\circ\text{C}$

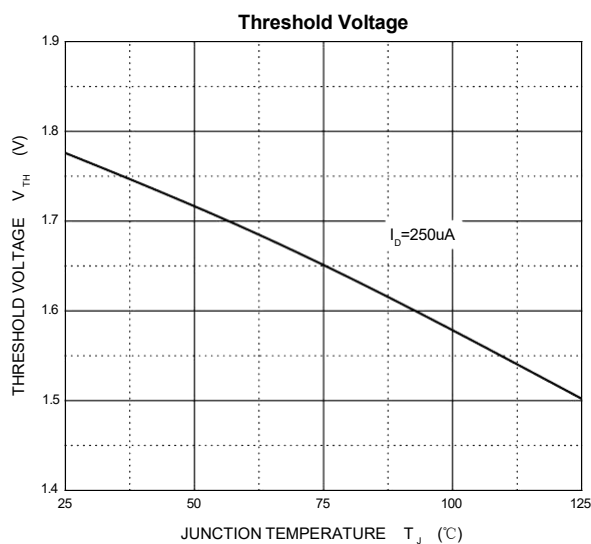
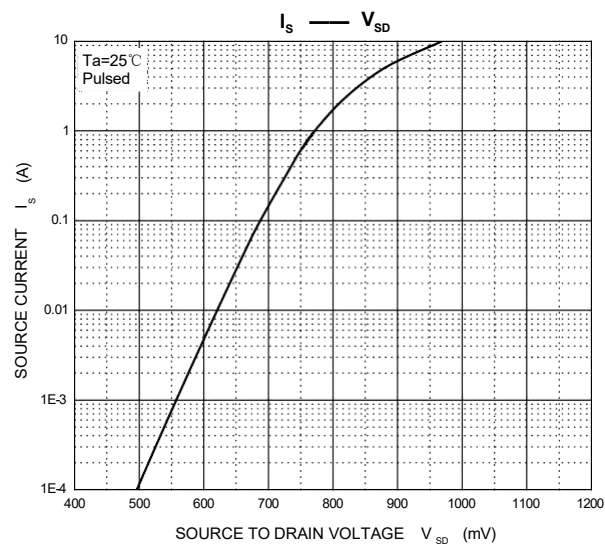
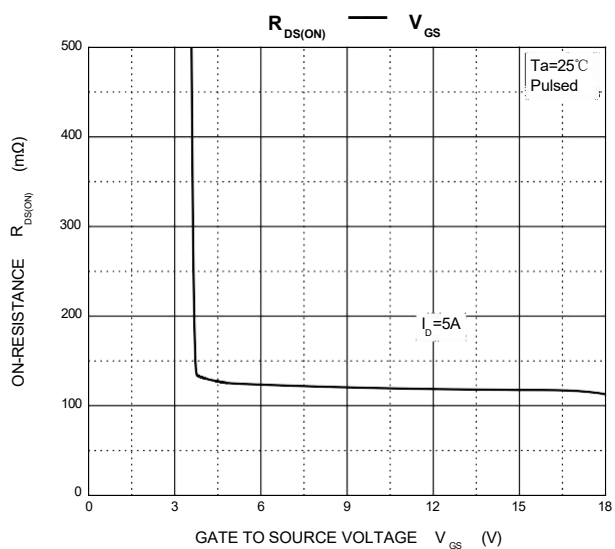
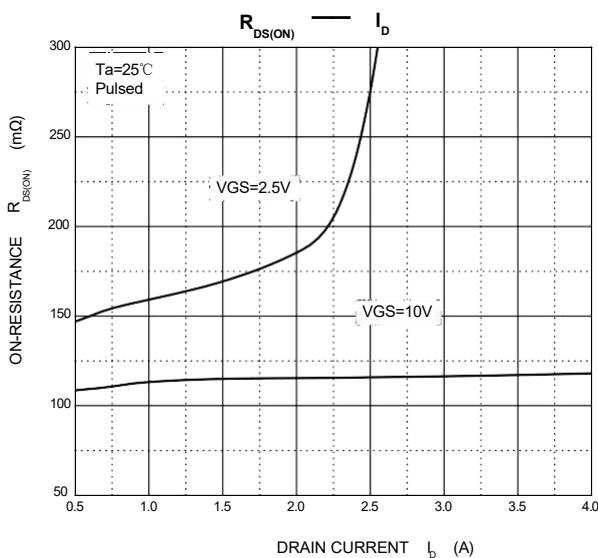
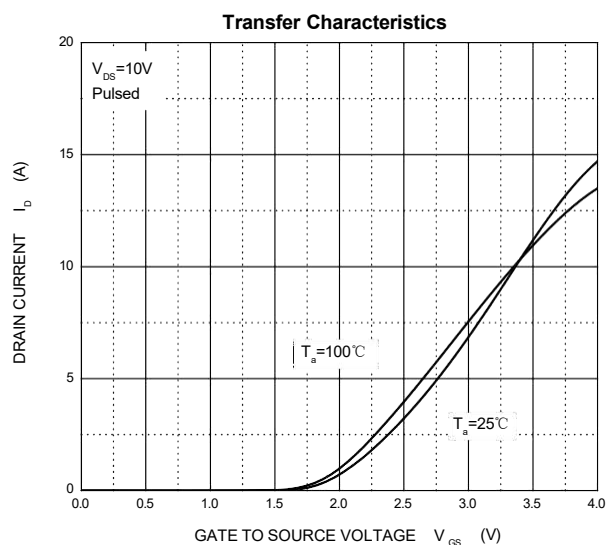
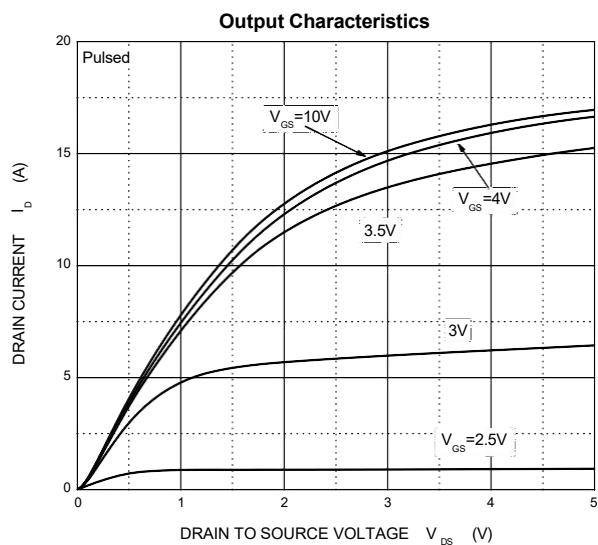
T_a=25 °C unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERISTICS						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	100			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =100V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V			± 100	nA
Gate threshold voltage (note 3)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	1.6	2	V
Drain-source on-resistance (note 3)	R _{DS(on)}	V _{GS} =10V, I _D =5A			140	mΩ
Forward transconductance (note 3)	g _{FS}	V _{DS} =5V, I _D =2.9A	3			S
Diode forward voltage (note 3)	V _{SD}	I _S =3A, V _{GS} = 0V			1.2	V
DYNAMIC CHARACTERISTICS (note 4)						
Input capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f =1MHz		690		pF
Output capacitance	C _{OSS}			120		pF
Reverse transfer capacitance	C _{rSS}			90		pF
SWITCHING CHARACTERISTICS (note 4)						
Turn-on delay time	t _{d(on)}	V _{GS} =10V, V _{DS} =30V, R _{GEN} =2.5Ω, I _D =2A, R _L =15Ω		11		ns
Turn-on rise time	t _r			7.4		ns
Turn-off delay time	t _{d(off)}			35		ns
Turn-off fall time	t _f			9.1		ns
Total gate charge	Q _g	V _{DS} =30V, V _{GS} =10V, I _D =3A		15.5		nC
Gate-source Charge	Q _{gs}			3.2		nC
Gate-drain Charge	Q _{gd}			4.7		nC

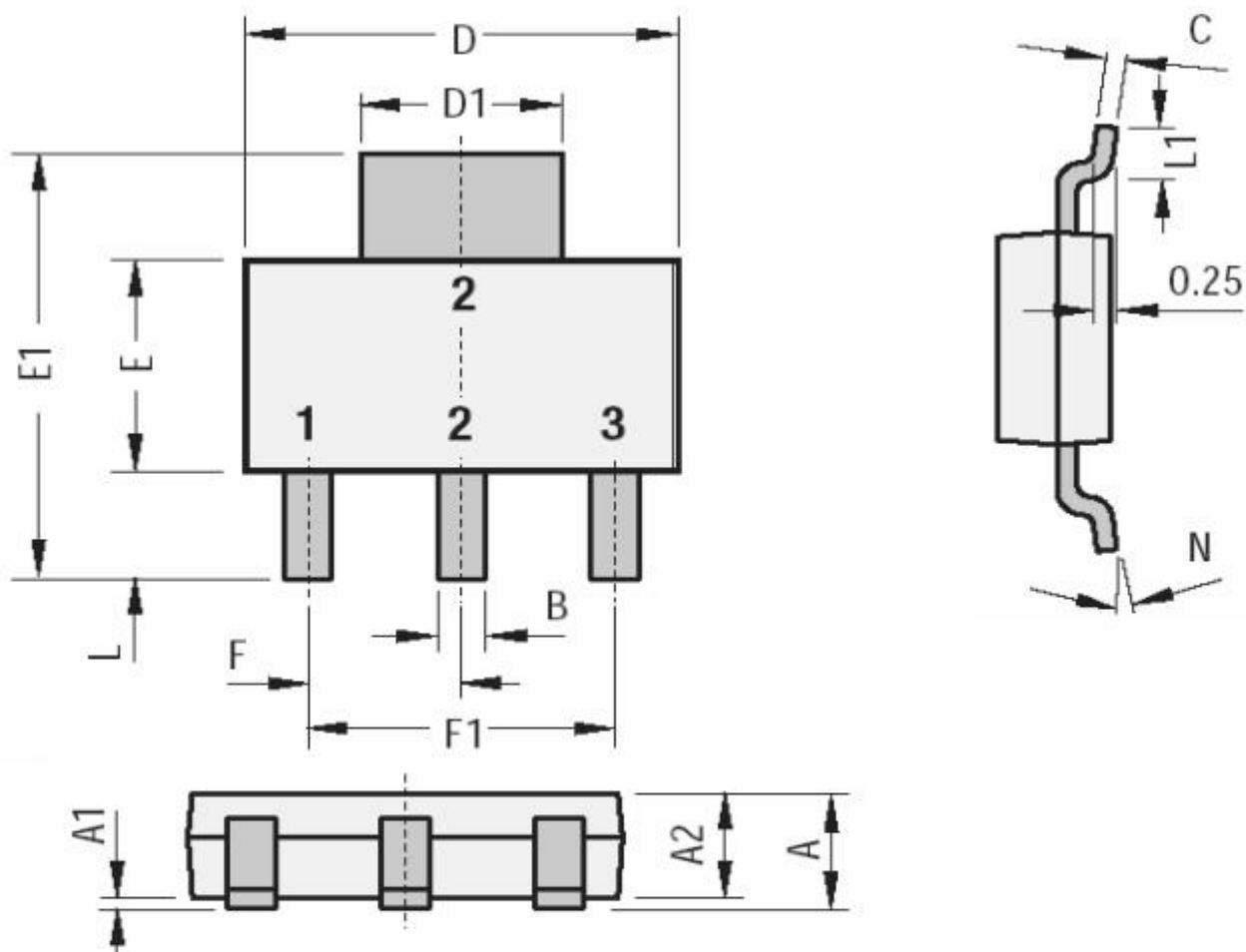
Notes :

1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board , t≤10s.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle≤2%.
4. Guaranteed by design, not subject to producing.

Typical Characteristics



SOT-223 SMD Plastic Package



DIM	Min	Max
A	1.52	1.80
A1	0.02	0.10
A2	1.50	1.70
B	0.61	0.81
C	0.25	0.35
D	6.30	6.70
D1	2.90	3.10

All Dimensions are in mm

DIM	Min	Max
E	3.30	3.70
E1	6.70	7.30
F	2.30 Typ	
F1	4.50	4.70
L	1.76 Typ	
L1	0.90	
N	0.00	10.00