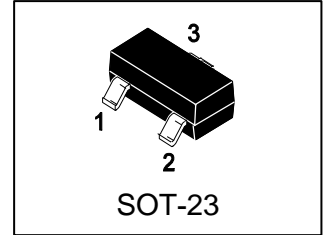


# N2322L

## N-Channel 20V (D-S) MOSFET

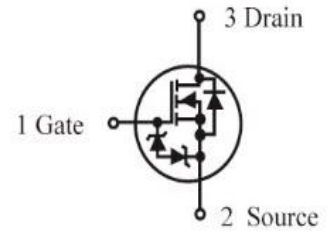
### 1. FEATURES

- Low Gate Threshold Voltage
- Fast Switching Speed
- Gate-Source ESD Protected
- We declare that the material of product are Halogen Free and compliance with RoHS requirements.



### 2. APPLICATIONS

- Battery Management Application
- Power Management Functions
- DC-DC Converters



### 3. ORDERING INFORMATION

Device	Marking	Shipping
N2322L	2ED	3000/Tape&Reel

### 4. MAXIMUM RATINGS(Ta = 25°C unless otherwise stated)

Parameter	Symbol	Limits	Unit
Drain-to-Source Voltage	VDSS	20	V
Gate-to-Source Voltage	VGS	± 12	V
Continuous Drain Current	ID	8	A
Pulsed Drain Current	IDM	26	A

### 5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Maximum Power Dissipation	PD	0.9	W
Thermal Resistance, Junction-to-Ambient(Note 1)	RθJA	140	°C/W
Junction and Storage temperature	TJ, Tstg	-55~+150	°C

1. 1-in<sup>2</sup> 2oz Cu PCB board.



## 6. ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Static					
Drain-Source Breakdown Voltage (VGS =0V, ID =250μA)	V(BR)DSS	20	-	-	V
Gate Threshold Voltage (VDS =VGS, ID =250μA)	VGS(th)	0.4	-	1	V
Gate Leakage Current (VDS =0V, VGS =± 10V)	IGSS	-	-	±10	μA
Zero Gate Voltage Drain Current (VDS =16V, VGS =0V)	IDSS	-	-	1	μA
Drain-Source On-Resistance(Note 2) (VGS =4.5V, ID = 0.5A) (VGS =2.5V, ID = 0.5A) (VGS =1.8V, ID = 0.5A)	RDS(ON)	-	-	25 40 40	mΩ
Diode Forward Voltage (ISD = 0.5 A, VGS = 0 V)	VSD	-	-	1.3	V
DYNAMIC					
Total Gate Charge	(VDS =10V, VGS =4.5V, ID =6.5A)	Qg	-	12	nC
Gate-Source Charge		Qgs	-	1.9	
Gate-Drain Charge		Qgd	-	3	
Input Capacitance	(VDS =10V, VGS =0V, f=1MHz)	Ciss	-	850	pF
Output Capacitance		Coss	-	395	
Reverse Transfer Capacitance		Crss	-	125	
Turn-On Delay Time	(VDS =10V, RL = 1.5Ω, VGS =5V, RGEN =3Ω)	td(on)	-	250	ns
Turn-On Rise Time		tr	-	420	
Turn-Off Delay Time		td(off)	-	3950	
Turn-Off Fall Time		tf	-	3700	

2. Pulse test; pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$

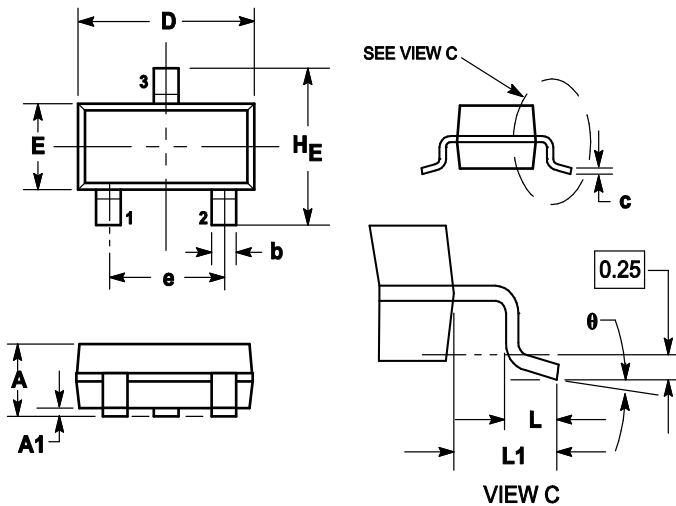
3. Matsuki Electric/ Force mos reserves the right to improve product design, functions and reliability without notice.



**7. OUTLINE AND DIMENSIONS**

Notes:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.



DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1	1.11	0.035	0.04	0.044
A1	0.01	0.06	0.1	0.001	0.002	0.004
b	0.37	0.44	0.5	0.015	0.018	0.02
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.9	3.04	0.11	0.114	0.12
E	1.20	1.3	1.4	0.047	0.051	0.055
e	1.78	1.9	2.04	0.07	0.075	0.081
L	0.10	0.2	0.3	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
HE	2.10	2.4	2.64	0.083	0.094	0.104
θ	0°	---	10°	0°	---	10°

**8. SOLDERING FOOTPRINT**
