

20V N-Channel Enhancement-Mode MOSFET

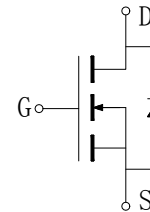
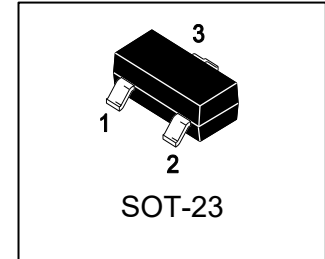
N2300L

APPLICATIONS

- 1) Advanced trench process technology
- 2) High Density Cell Design For Ultra Low On-Resistance
- 3) ESD Rating of Class 0 (<100V) per Human Body Model
- 3) We declare that the material of product are Halogen Free and compliance with RoHS requirements.

FEATURES

- V_{DSS} (Minimum) =20V
- I_D (Maximum) =5A
- $R_{DS(ON)}$ =26 m Ω (Typ.) @ V_{GS} =4.5V
- $R_{DS(ON)}$ =33 m Ω (Typ.) @ V_{GS} =2.5V



N-Channel MOSFET

DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
N2300L		3000/Tape&Reel

MAXIMUM RATINGS(Ta = 25oC)

Parameter	Symbol	Limits	Unit
Drain–Source Voltage	VDSS	20	V
Gate–to–Source Voltage – Continuous	VGS	±12	V
Continuous Drain Current (Note 1)	ID	6	A
		4.7	
Pulsed Drain Current	IDM	24	A
Maximum Power Dissipation	PD	1.4	W
		0.9	
Operating Junction Temperature	TJ	-55~+150	°C
Thermal Resistance-Junction to Ambient(Note 2)	RθJA	90	°C/W

- Notes: 1. Repetitive Rating: Pulse width limited by the Maximum junction temperature
 2. 1-in² 2oz Cu PCB board



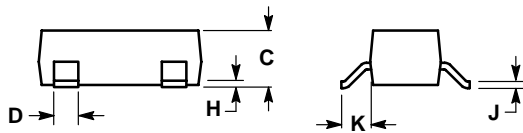
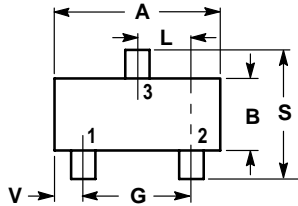
ELECTRICAL CHARACTERISTICS (Ta= 25°C)

Symbol	Parameter	Test Condition	TJM008A			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	20			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =20V, V _{GS} =0V			1	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	0.5	0.7	1.5	V
I _{GSS}	Gate Leakage Current	V _{GS} =±10V, V _{DS} =0V			±100	nA
R _{DS(ON)}	Drain-Source On-state Resistance (Note 3)	V _{GS} =4.5V, I _{DS} =6A		26	32	mΩ
		V _{GS} =2.5V, I _{DS} =5A		33	40	mΩ
Diode Characteristics						
V _{SD}	Diode Forward Voltage (Note 3)	I _{SD} =1A, V _{GS} =0V			1	V
t _{rr}	Reverse Recovery Time	I _{SD} =1A, dI _{SD} /dt=100A/μs		15		ns
Q _{rr}	Reverse Recovery Charge			8		nC
Dynamic Characteristics (Note 4)						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz		1.5		Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =10V, Frequency=1.0MHz		590		pF
C _{oss}	Output Capacitance			125		
C _{rss}	Reverse Transfer Capacitance			90		
t _{d(ON)}	Turn-on Delay Time	V _{DD} =10V, R _L =1.7Ω, I _{DS} =6A, V _{GEN} =4.5V, R _G =6Ω		8		ns
t _r	Turn-on Rise Time			15		
t _{d(OFF)}	Turn-off Delay Time			33		
t _f	Turn-off Fall Time			13		
Gate Charge Characteristics (Note 4)						
Q _g	Total Gate Charge	V _{DS} =16V, V _{GS} =4.5V, I _{DS} =6A		10		nC
Q _{gs}	Gate-Source Charge			1.6		
Q _{gd}	Gate-Drain Charge			3.4		

Notes: 3. Pulse test ; Pulse width≤300μs, duty cycle≤2%.

4. Guaranteed by design, not subject to production testing.



SOT-23

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M,1982
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

