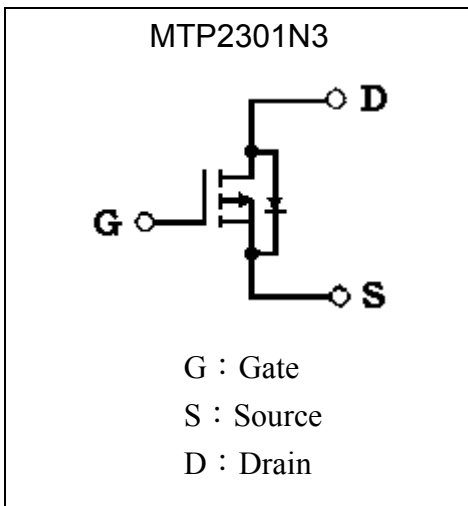
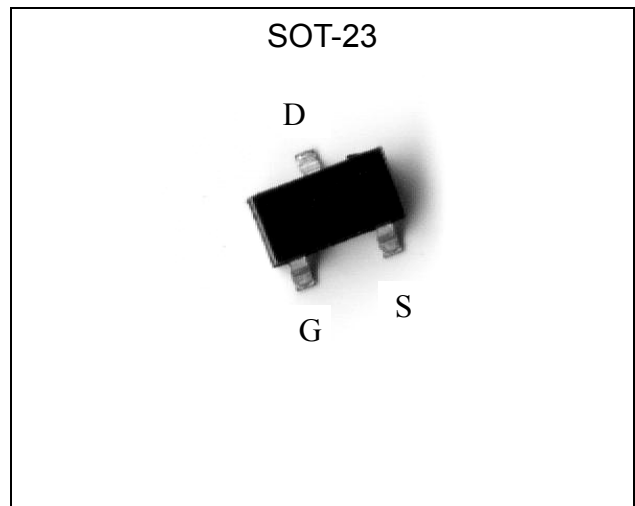


20V P-CHANNEL Enhancement Mode MOSFET

MTP2301N3

Features

- $V_{DS} = -20V$
 $R_{DS(ON)} = 130m\Omega @ V_{GS} = -4.5V, I_{DS} = -2.8A$
 $R_{DS(ON)} = 190m\Omega @ V_{GS} = -2.5V, I_{DS} = -2A$
- Advanced trench process technology
- High density cell design for ultra low on resistance
- Excellent thermal and electrical capabilities
- Compact and low profile SOT-23 package
- Pb-free package

Equivalent Circuit

Outline

Absolute Maximum Ratings ($T_a = 25^\circ C$)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current	I_D	-2.3	A
Pulsed Drain Current	I_{DM}	-10	A
Maximum Power Dissipation	P_D	$T_a = 25^\circ C$	1.25
		$T_a = 75^\circ C$	0.8
Operating Junction Temperature	T_j	-55~+150	$^\circ C$
Storage Temperature	T_{stg}	-55~+150	$^\circ C$



Thermal Performance

Parameter	Symbol	Limit	Unit
Thermal Resistance, Junction-to-Ambient(PCB mounted)	R _{th,ja}	100	°C/W
Lead Temperature, for 5 second soldering(1/8" from case)	T _L	260	°C

Note : Surface mounted on FR-4 board, t ≤ 5sec.

Electrical Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	-20	-	-	V	V _{GS} =0, I _D =-250μA
V _{GS(th)}	-0.45	-	-	V	V _{DS} =V _{GS} , I _D =-250μA
I _{GSS}	-	-	±100	nA	V _{GS} =±8V, V _{DS} =0
I _{DSS}	-	-	-1	μA	V _{DS} =-16V, V _{GS} =0
*I _{D(ON)}	-6	-	-	A	V _{DS} ≥-10V, V _{GS} =-5V
*R _{D(S)ON}	-	95	130	mΩ	I _D =-2.8A, V _{GS} =-4.5V
	-	122	190		I _D =-2A, V _{GS} =-2.5V
*G _{FS}	-	6.5	-	S	V _{DS} =-5V, I _D =-2.8A
Dynamic					
C _{iss}	-	447	-	pF	V _{DS} =-6V, V _{GS} =0, f=1MHz
C _{oss}	-	127	-		
C _{rss}	-	80	-		
t _{d(ON)}	-	5	25	ns	V _{DD} =-6V, I _D =-1A, R _L =6Ω V _{GEN} =-4.5V, R _G =6Ω
t _r	-	19	60		
t _{d(OFF)}	-	95	110		
t _f	-	65	80		
Q _g	-	5.4	10	nC	V _{DS} =-6V, I _D =-2.8A, V _{GS} =-4.5V,
Q _{gs}	-	0.8	-		
Q _{gd}	-	1.1	-		
Source-Drain Diode					
I _{SD}	-	-	-1.6	A	-
V _{SD}	-	-0.8	-1.2	V	V _{GS} =0V, I _{SD} =-1.6A

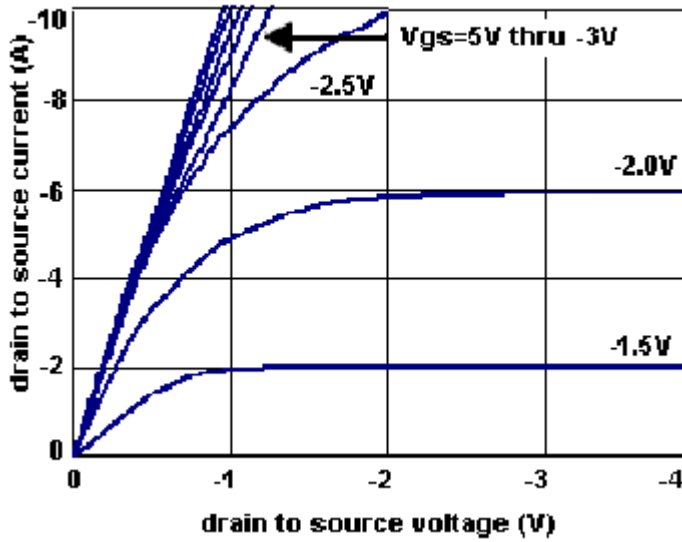
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Ordering Information

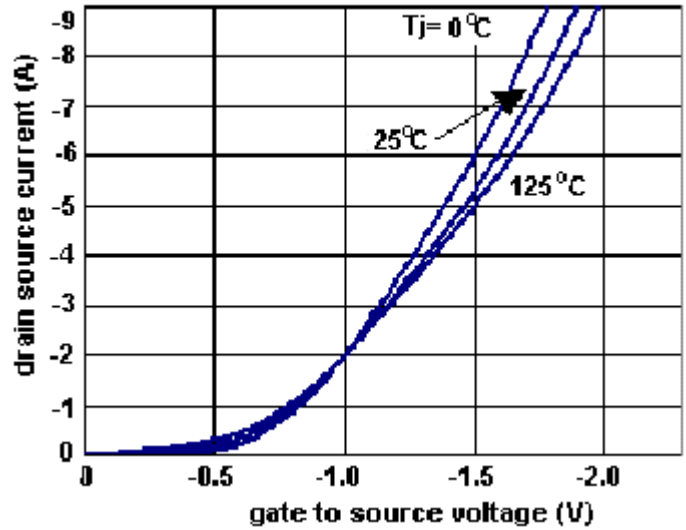
Device	Package	Shipping	Marking
MTP2301N3	SOT-23 (Pb-free)	3000 pcs / Tape & Reel	01

Characteristic Curves

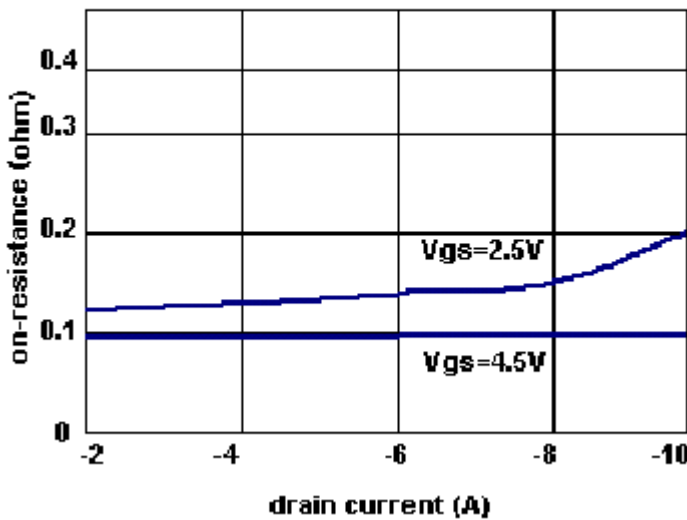
Output Characteristic



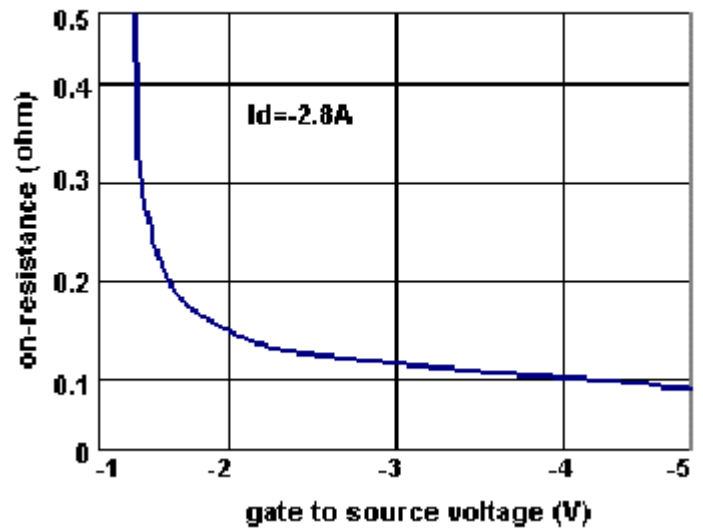
Transfer Characteristic



On Resistance vs Drain Current

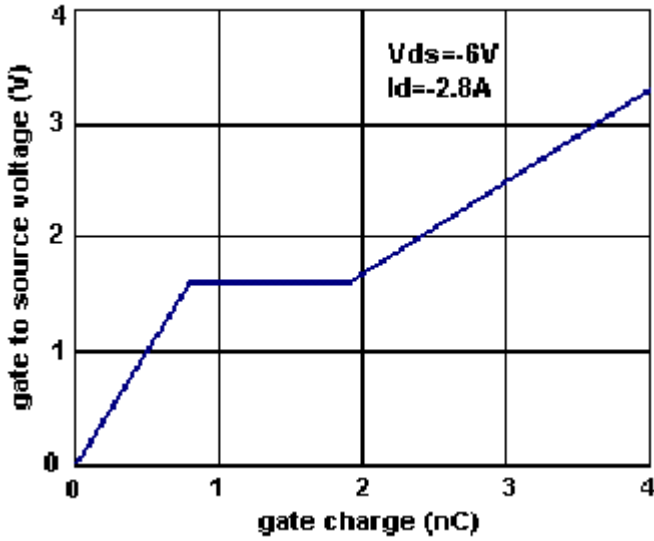


On Resistance vs Gate-Source

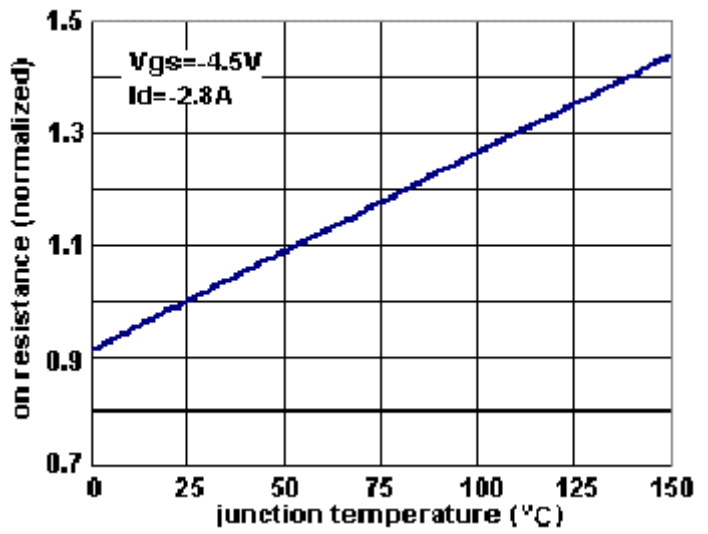




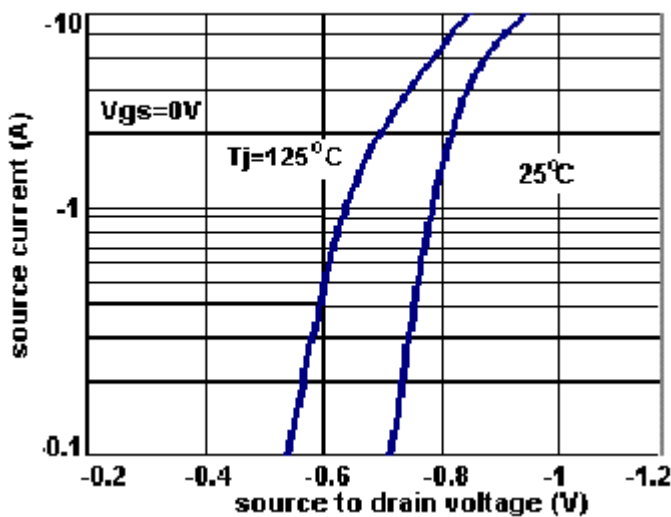
Gate Charge



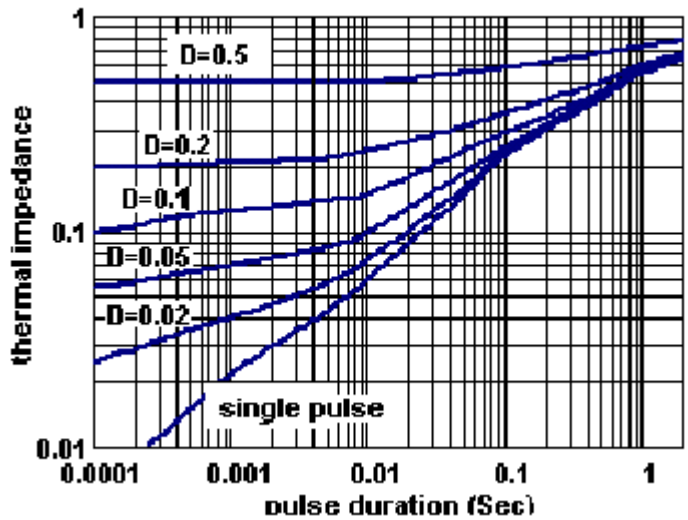
On Resistance vs Junction temp.



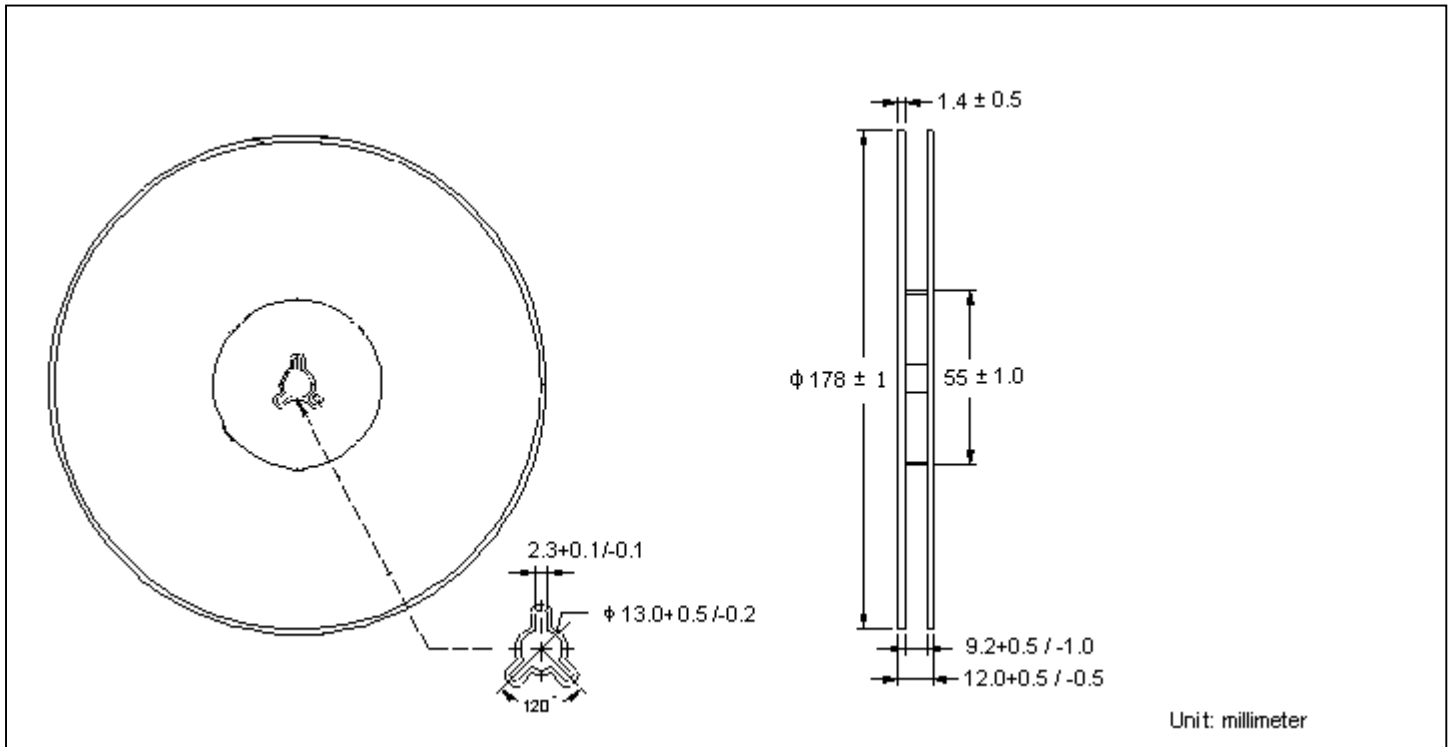
Source Drain Diode Forward Voltage



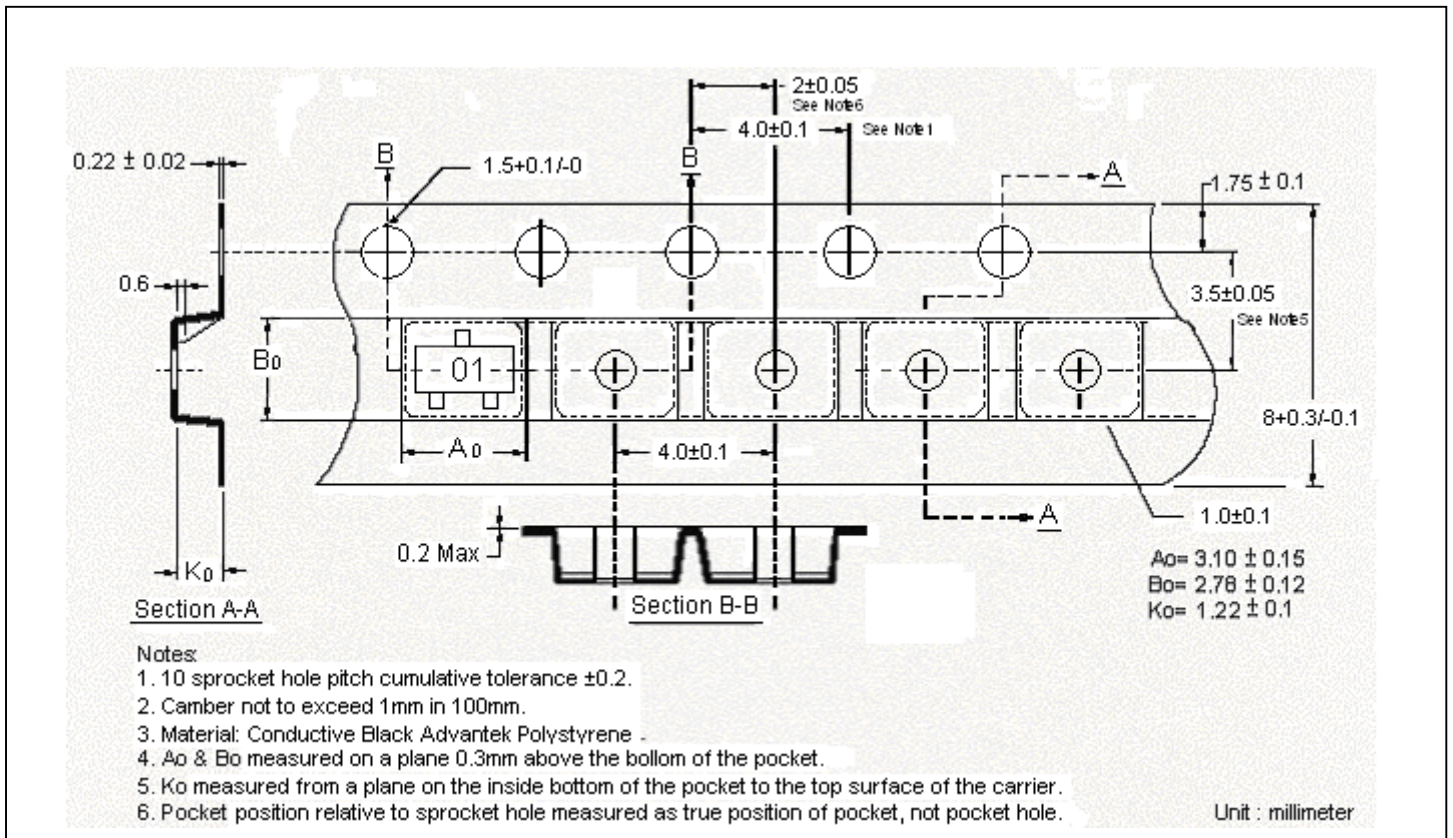
Transient Thermal Impedance



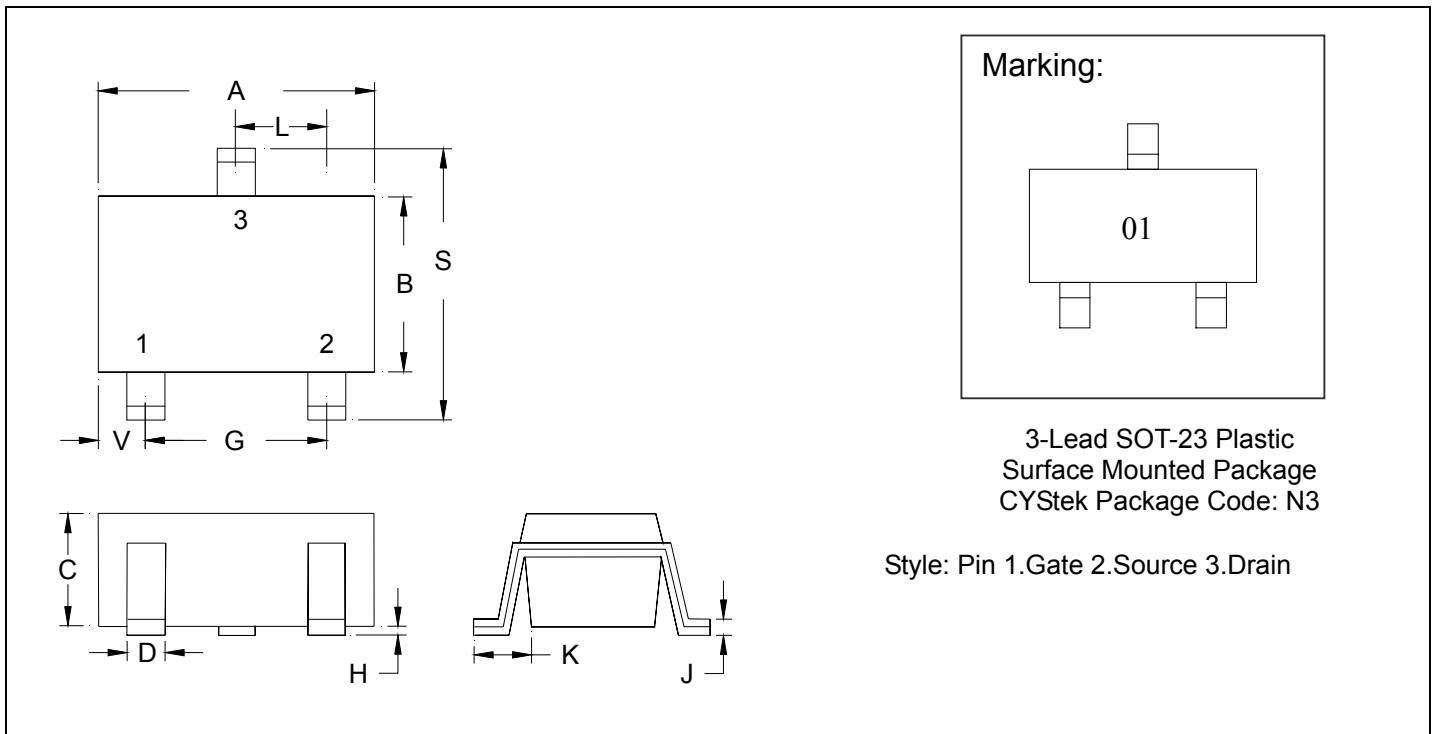
Reel Dimension



Carrier Tape Dimension



SOT-23 Dimension



*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1102	0.1204	2.80	3.04	J	0.0034	0.0070	0.085	0.177
B	0.0472	0.0630	1.20	1.60	K	0.0128	0.0266	0.32	0.67
C	0.0335	0.0512	0.89	1.30	L	0.0335	0.0453	0.85	1.15
D	0.0118	0.0197	0.30	0.50	S	0.0830	0.1083	2.10	2.75
G	0.0669	0.0910	1.70	2.30	V	0.0098	0.0256	0.25	0.65
H	0.0005	0.0040	0.013	0.10					

- Notes:**
- Controlling dimension: millimeters.
 - Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
 - If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material:

- Lead: 42 Alloy ; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

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