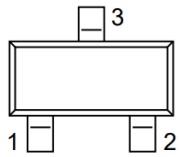
TNM1K30KX

N-Channel 30-V (D-S) MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
30 V	0.8Ω@4.5V(max)	400mA
	1.0Ω@2.5V(max)	300mA

SOT-23



1. GATE
2. SOURCE
3. DRAIN

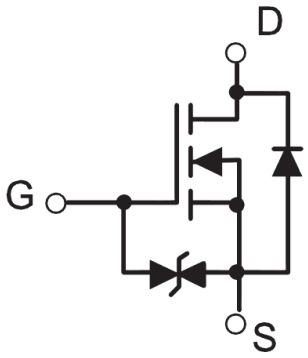
FEATURE

- Low on-resistance
- Fast switching speed
- Low voltage drive makes this device ideal for Portable equipment
- Easily designed drive circuits
- Easy to parallel

APPLICATION

- Interfacing , Switching

Equivalent Circuit



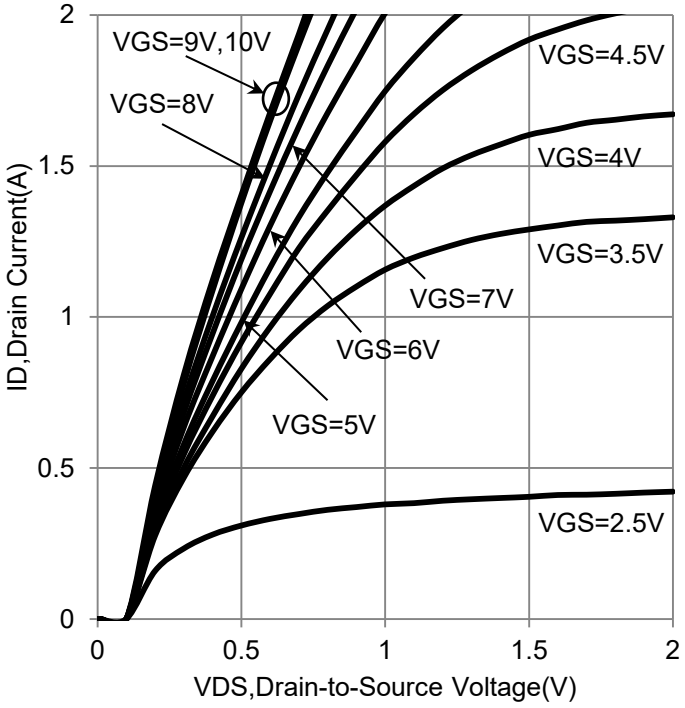
MOSFET MAXIMUM RATINGS (T_a = 25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±12	V
I_D	Continuous Drain Current	0.4	A
P_D	Power Dissipation	0.35	W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	℃
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	357	℃ /W

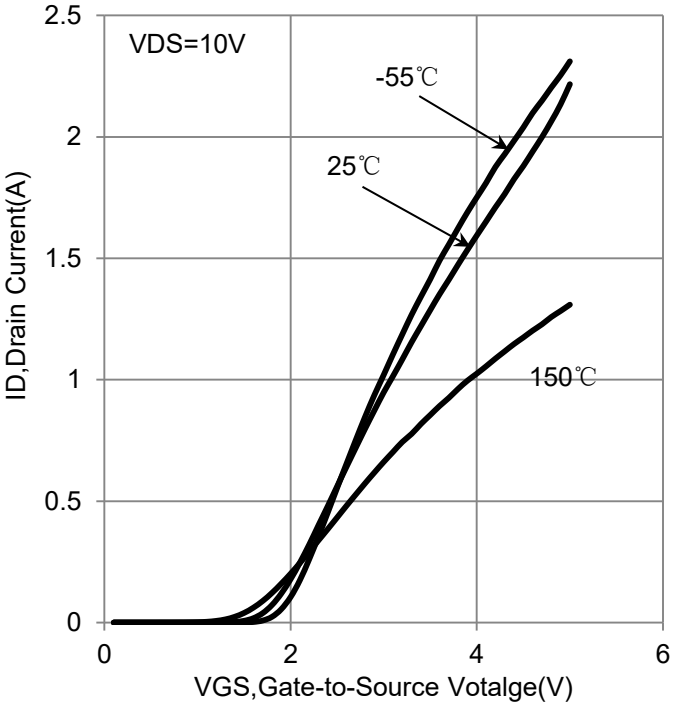
T_a=25℃ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off Characteristics						
Drain-Source Breakdown Voltage	V_{DS}	VGS = 0V, ID =250μA	30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =30V,V_{GS} = 0V			1	μA
Gate –Source leakage current	I_{GSS}	V_{GS} =±10V, V_{DS} = 0V			±10	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = VGS , I_D =250μA	0.78		1.1	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 4.5V, I_D =400mA		0.4	0.8	Ω
		V_{GS} = 2.5V, I_D =300mA		0.7	1.0	Ω
Forward Transconductance	gfs	V_{DS}=3V,I_D=10mA		0.33		mS
Dynamic Characteristics*						
Input Capacitance	C_{iss}	V_{DS} =5V,V_{GS} =0V,f =1MHz		42		pF
Output Capacitance	C_{oss}			12.2		pF
Reverse Transfer Capacitance	C_{rss}			8		pF
Switching Characteristics*						
Turn-On Delay Time	$t_{d(on)}$	V_{GS} =5V, V_{DD} =5V, I_D =10mA, Rg=10Ω, R_L=500Ω,		15		ns
Rise Time	t_r			35		ns
Turn-Off Delay Time	$t_{d(off)}$			70		ns
Fall Time	t_f			70		ns

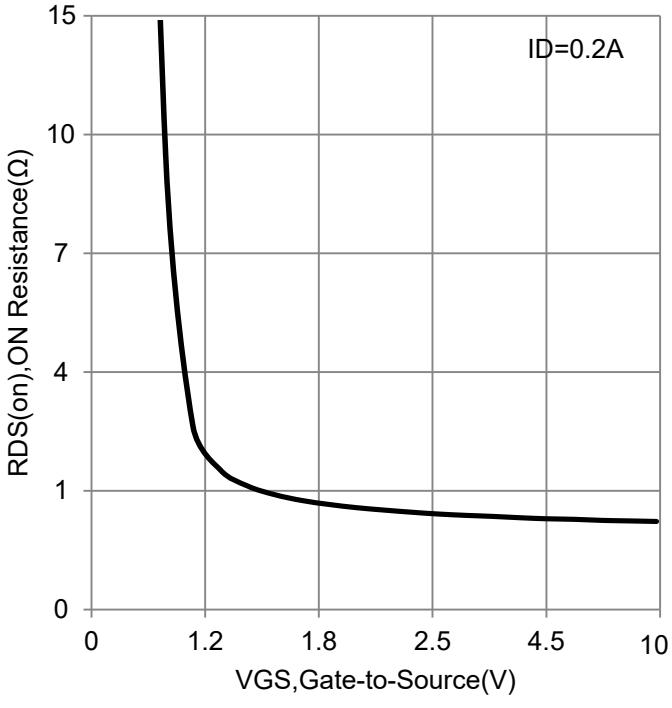
1. Surface−mounted on FR4 board using 1 in sq pad size
   (Cu area = 1.27 in sq [2 oz] including traces).
2. Pulse Test: Pulse Width ≤100 μs, Duty Cycle ≤2.0%.



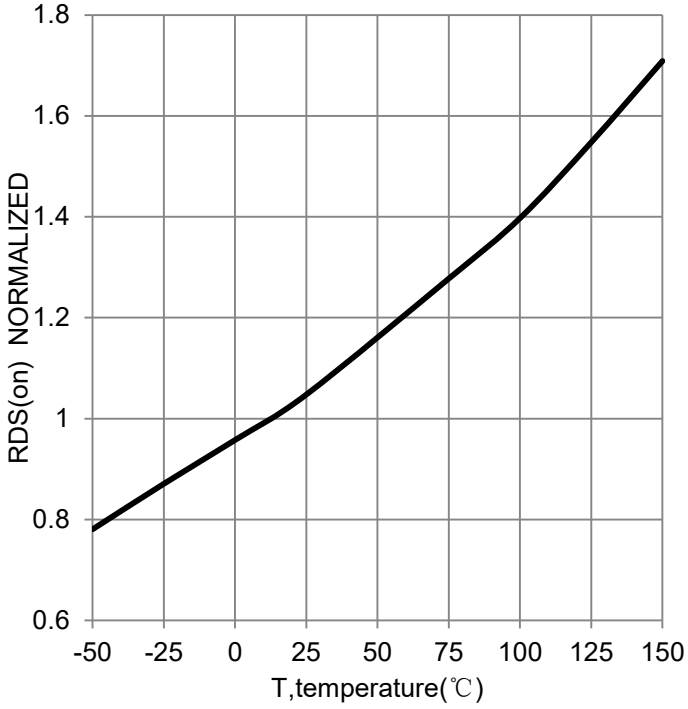
On-Region Characteristics



Transfer Characteristics



RDS(on) vs. VGS



RDS(on) vs. Temperature

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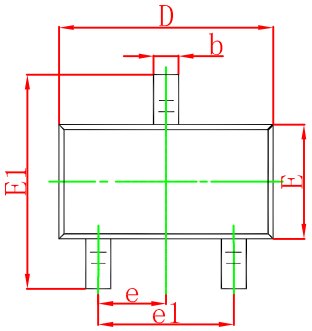
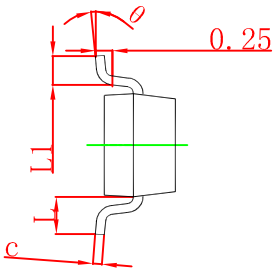
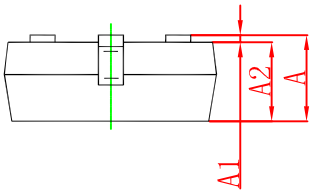
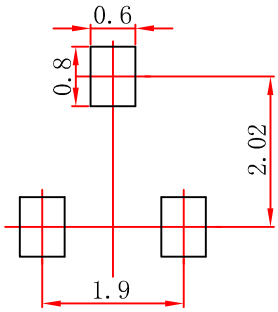






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

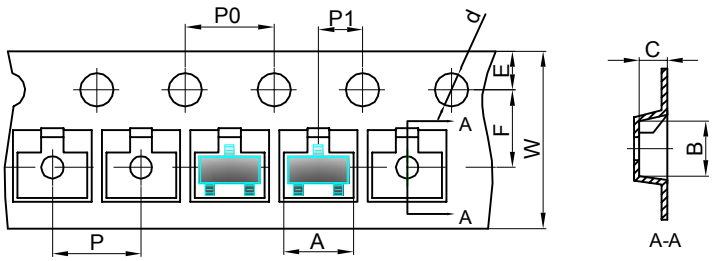
SOT-23 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

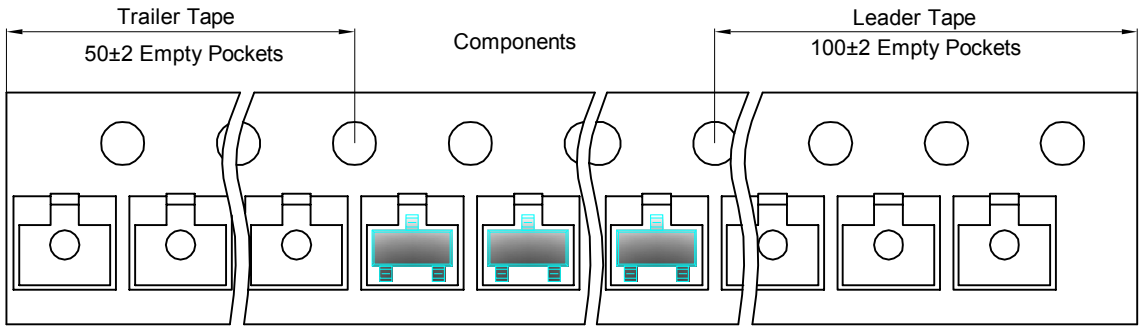
SOT-23 Tape and reel

SOT-23 Embossed Carrier Tape

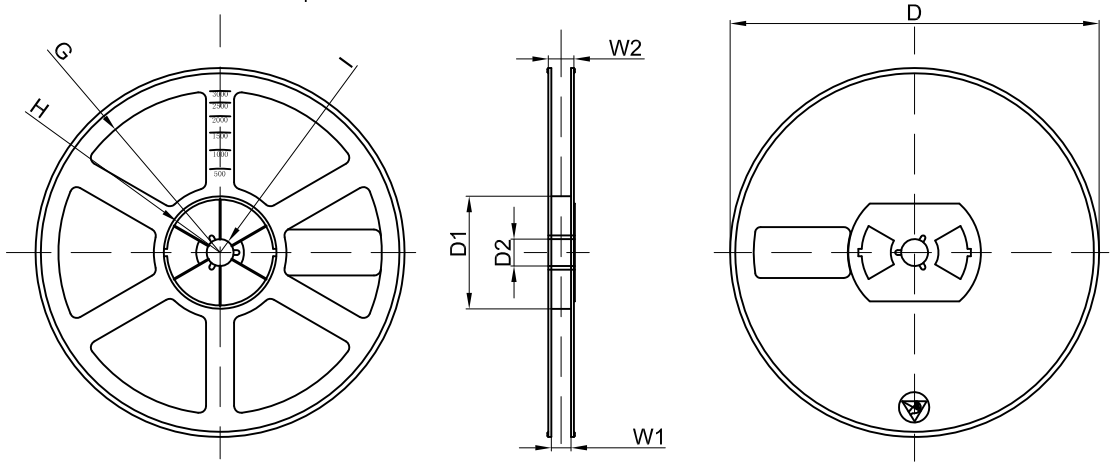


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23 Tape Leader and Trailer



SOT-23 Reel 3000 pcs



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30