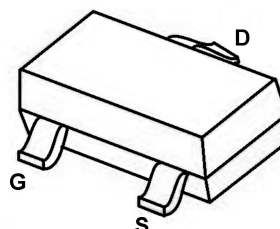


20V N-Channel Mosfet

FEATURES

- $R_{DS(ON)} \leq 0.38\Omega$ (0.25 Ω Typ.)
@ $V_{GS}=4.5V$
- $R_{DS(ON)} \leq 0.45\Omega$ (0.35 Ω Typ.)
@ $V_{GS}=2.5V$
- $R_{DS(ON)} \leq 0.8\Omega$ (0.4 Ω Typ.)
@ $V_{GS}=1.8V$

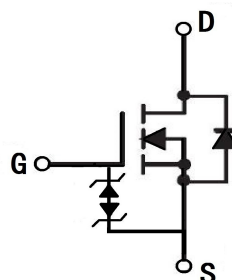
SOT-23



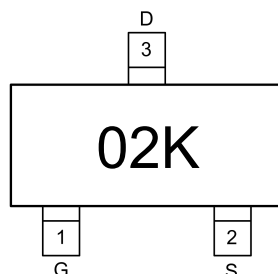
APPLICATIONS

- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

N-CHANNEL MOSFET



MARKING



02K :Device Code

MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

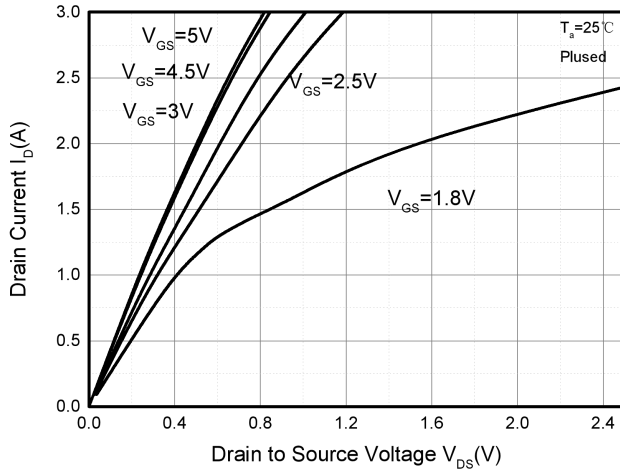
Symbol	Parameter	Max.	Units
V_{DSS}	Drain-Source Voltage	20	V
V_{GSS}	Gate-Source Voltage	± 12	V
I_D	Continuous Drain Current	0.75	A
I_{DM}	Pulsed Drain Current	1.8	A
P_D	Power Dissipation	0.35	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	$^{\circ}C/W$
T_J	Operating and Storage Temperature Range	150	$^{\circ}C$
T_{STG}	Operating and Storage Temperature Range	-55 to +150	$^{\circ}C$

MOSFET ELECTRICAL CHARACTERISTICS Ta=25 °C unless otherwise specified

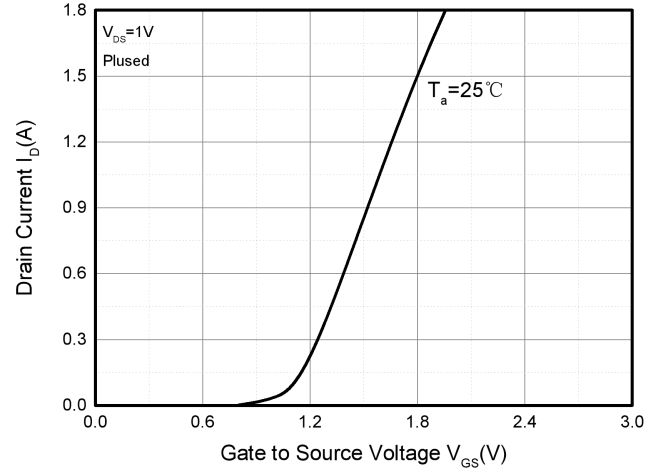
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250μA	20	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 16V, V _{GS} = 0V, T _J = 25°C	-	-	1	μA
I _{GSS}	Gate to Body Leakage Current	V _{GS} = ±10V, V _{DS} = 0V	-	-	±10	μA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D = 250μA	0.3	0.65	1	V
R _{DS(on)}	Static Drain-Source On-Resistance	V _{GS} =4.5V, I _D =0.5A	-	0.25	0.38	Ω
		V _{GS} =2.5V, I _D =0.4A	-	0.35	0.45	
		V _{GS} =1.8V, I _D =0.1A	-	0.4	0.8	
Dynamic Characteristics						
C _{iSS}	Input Capacitance	V _{DS} =16V, V _{GS} = 0V, f = 1.0MHz	-	79	120	pF
C _{oSS}	Output Capacitance		-	13	20	pF
C _{rSS}	Reverse Transfer Capacitance			9	15	pF
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{GS} = 4.5V, V _{DS} =10V, R _G =10Ω, I _D =500mA	-	6.7	-	ns
t _r	Turn-On Rise Time		-	4.8	-	ns
t _{d(off)}	Turn-Off Delay Time		-	17.3	-	ns
t _f	Turn-Off Fall Time		-	7.4	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} = 0V, I _{SD} =0.5A, T _J = 25°C	-	0.7	1.3	V

TYPICAL PERFORMANCE CHARACTERISTICS

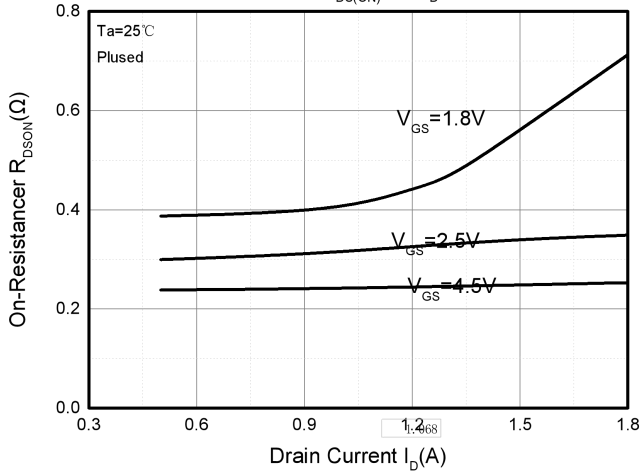
Output Characteristics



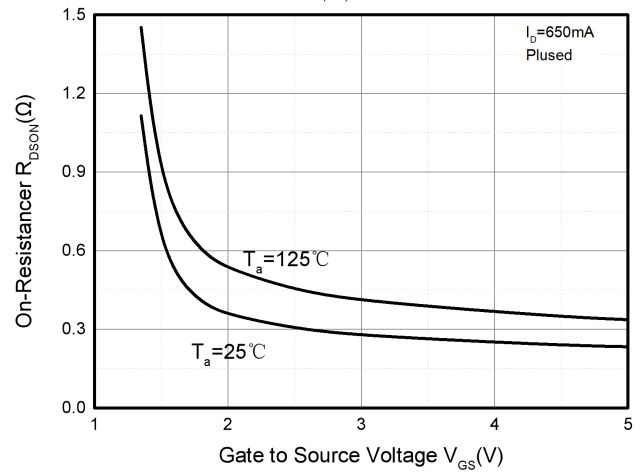
Transfer Characteristics



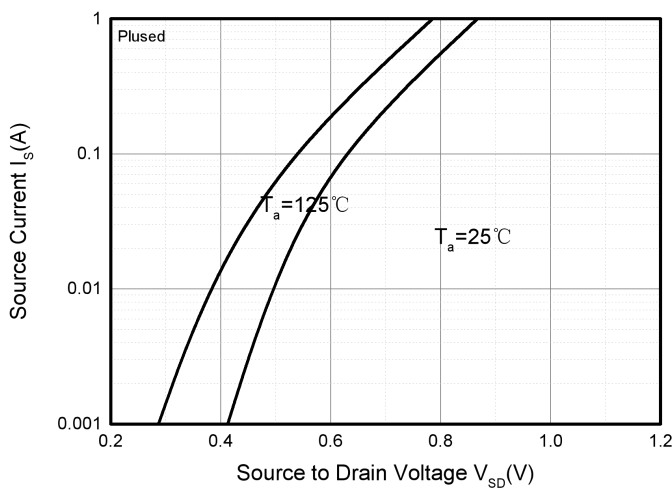
$R_{DS(ON)} - I_D$



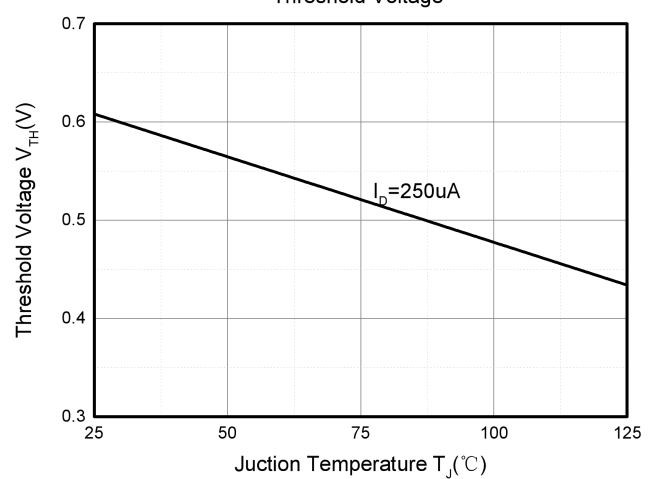
$R_{DS(ON)} - V_{GS}$



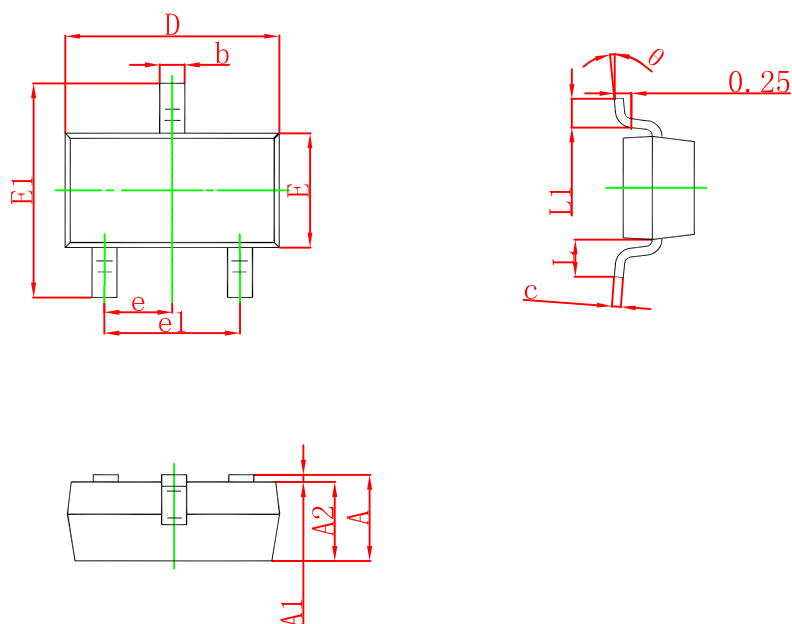
$I_S - V_{SD}$



Threshold Voltage



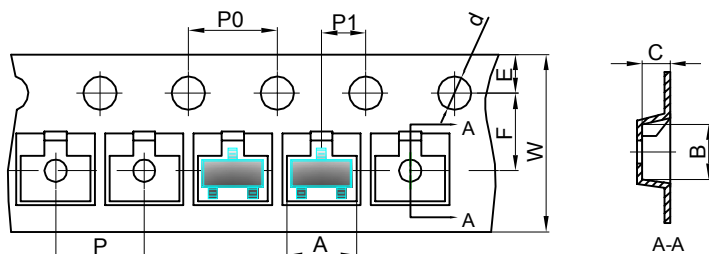
SOT-23 PACKAGE OUTLINE DRAWING



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°

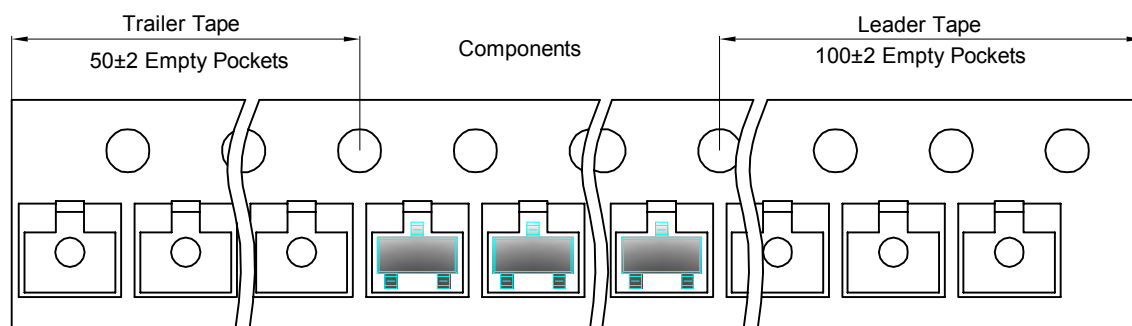
SOT-23 Tape and reel

SOT-23 Embossed Carrier Tape

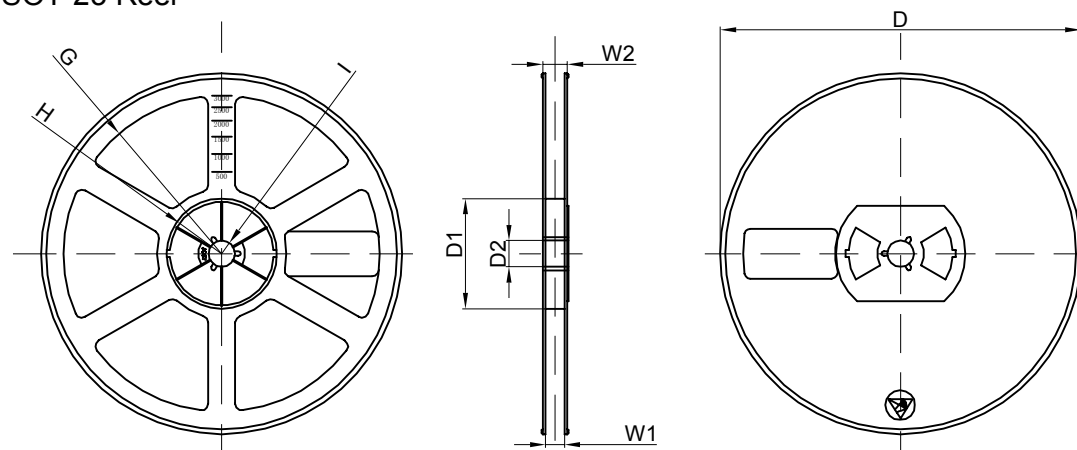


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23 Tape Leader and Trailer



SOT-23 Reel



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

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	30,000 pcs	203×203×195	120,000 pcs	438×438×220	