



## N-Channel Small Signal MOSFET

20V  
SOT23

### Features

- Voltage Controlled Small Signal Switch
- High Density Cell Design for Low RDS(ON)
- Rugged and Reliable
- ESD Protected

### Mechanical Data

- Case: SOT23 Package
  - Case Material: "Green" Molding Compound  
UL Flammability Classification Rating 94V-0
  - Halogen Free
- Note: Products with logo  or  are made by HY Electronic (Cayman) Limited.

### Ordering Information

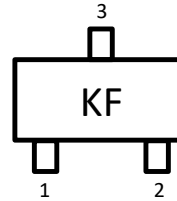
- Package :SOT23
- Reel Size :7 (inches)
- Quantity Per Reel :3,000 pcs

### Package Outline



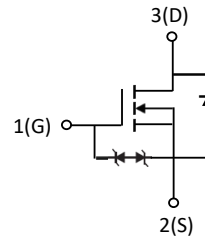
SOT23 Top View

### Marking Information



"KF" = Product Type Marking Code

### Device Schematic & PIN Configuration



### Maximum Ratings (@TA = +25°C, unless otherwise specified.)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DS</sub>	20	V
Gate-Source Voltage	V <sub>GS</sub>	±12	V
Drain Current-Continuous	I <sub>D</sub>	0.75	A
Pulsed Drain Current (t <sub>p</sub> = 10us)	I <sub>DM</sub>	1.8	A
Power Dissipation	P <sub>D</sub>	0.35	W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C
Thermal Resistance from Junction to Ambient	R <sub>θJA</sub>	357	°C/W

### Electrical Characteristics(@TA = +25°C, unless otherwise specified.)

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	V <sub>DSS</sub>	20	-	-	V
Gate-Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	V <sub>GS(th)</sub>	0.35	-	1.1	V
Gate-Body Leakage Current	V <sub>DS</sub> =0V, V <sub>GS</sub> =±10V	I <sub>GSS</sub>	-	-	±20	μA
Zero Gate Voltage Drain Current	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V	I <sub>DSS</sub>	-	-	1.0	μA
Drain-Source On-Resistance	V <sub>GS</sub> =4.5V, I <sub>D</sub> =0.65A	R <sub>DS(on)</sub>	-	-	380	mΩ
	V <sub>GS</sub> =2.5V, I <sub>D</sub> =0.55A		-	-	450	
	V <sub>GS</sub> =1.8V, I <sub>D</sub> =0.45A		-	-	800	
Forward Transconductance	V <sub>DS</sub> =10V, I <sub>D</sub> =0.8A	g <sub>FS</sub>	-	1.6	-	S



## Electrical Characteristics(@TA = +25°C, unless otherwise specified.)

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
<b>Dynamic Characteristics</b>						
Input Capacitance	$V_{DS}=16V, V_{GS}=0V$ $f=1MHz$	$C_{ISS}$	-	79	120	pF
Output Capacitance		$C_{OSS}$	-	13	20	
Reverse Transfer Capacitance		$C_{RSS}$	-	9	15	
<b>Switching Characteristics</b>						
Turn-On Delay Time	$V_{GS}=4.5V, V_{DS}=10V,$ $R_{GEN}=10\Omega, I_D=0.5A$	$t_{d(on)}$	-	6.7	-	nS
Turn-On Rise Time		$t_r$	-	4.8	-	
Turn-Off Delay Time		$t_{d(off)}$	-	17.3	-	
Turn-Off Fall Time		$t_f$	-	7.4	-	
<b>Source-Drain Characteristics</b>						
Diode Forward Voltage	$I_D=0.15A, V_{GS}=0V$	$V_{DS}$	-	-	1.2	V



## Rating and Characteristic Curves

FIG.1 - Output Characteristic

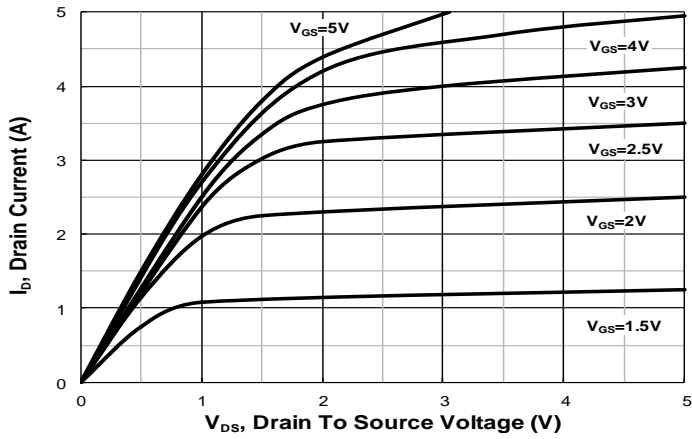


FIG.2 - Transfer Characteristics

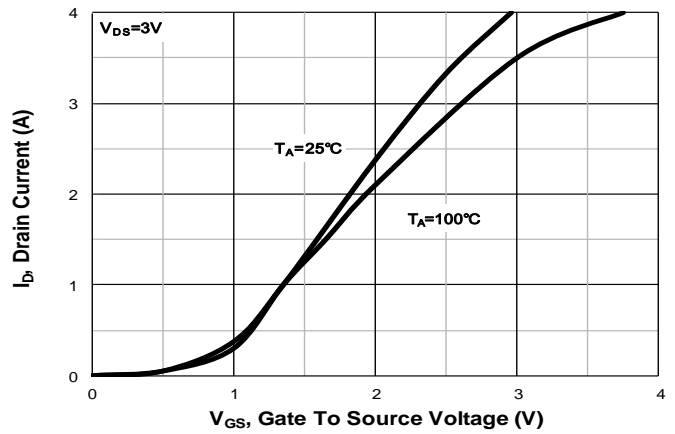


FIG.3 -  $R_{DS(ON)} - I_D$

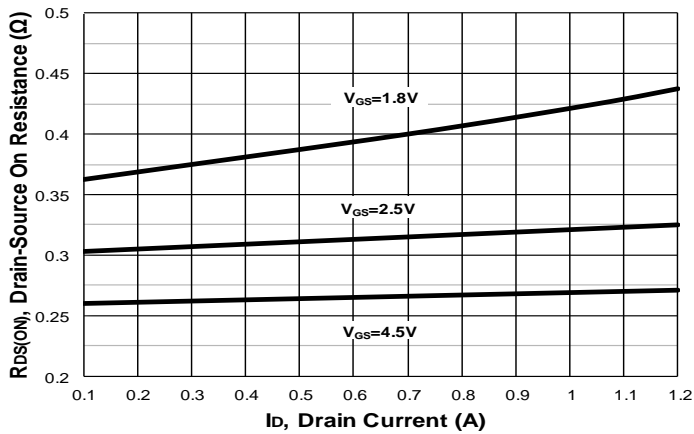


FIG.4 -  $R_{DS(ON)} - V_{GS}$

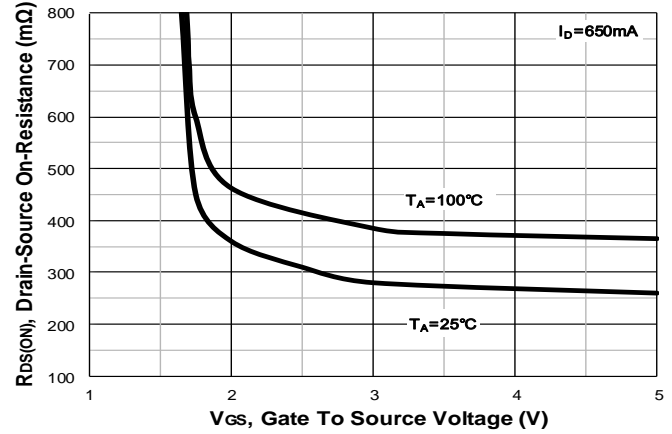


FIG.5 -  $I_S - V_{SD}$

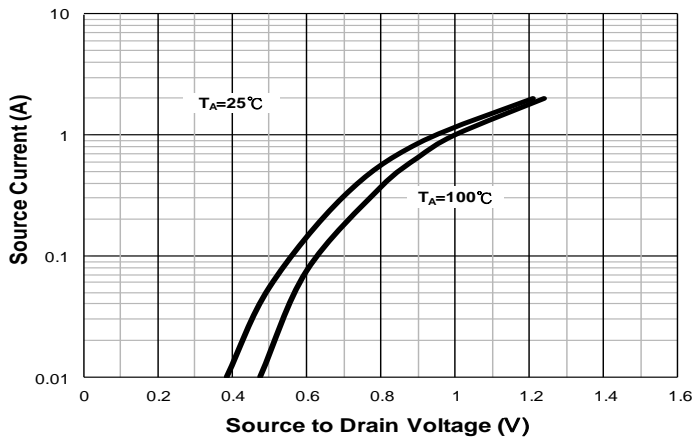
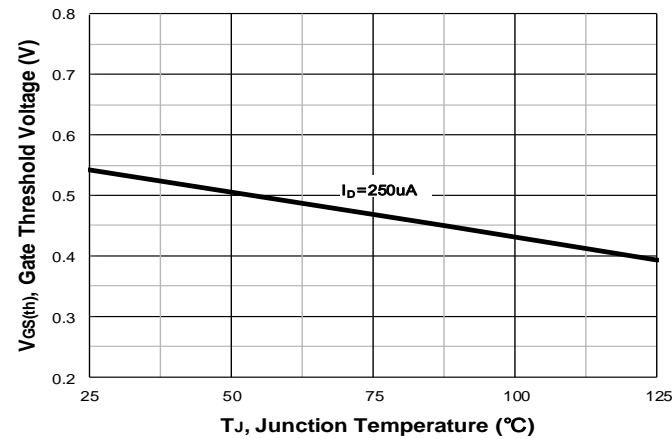
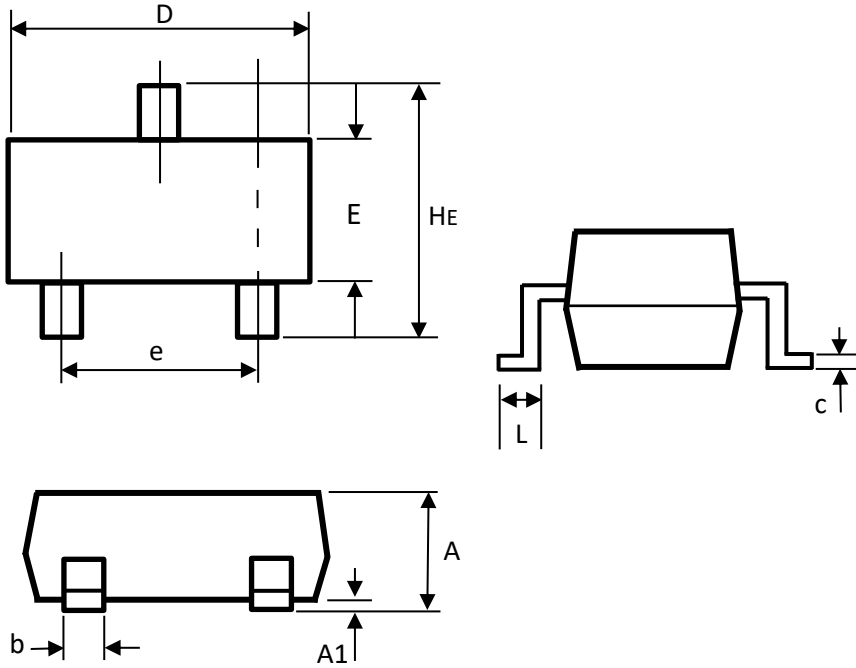


FIG.6 - Threshold Voltage



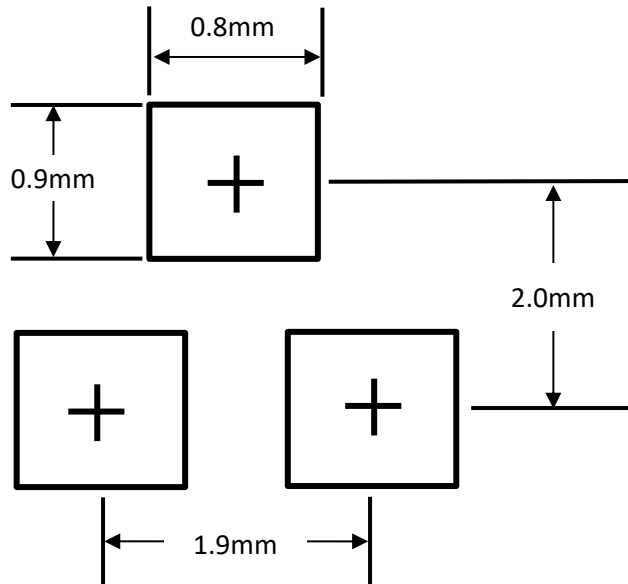


## Package Outline Dimensions



SOT23 Package		
Dim	Min	Max
A	0.90	1.11
A1	0.01	0.10
b	0.37	0.51
c	0.08	0.18
D	2.80	3.04
E	1.20	1.40
e	1.78	2.05
L	0.30	0.50
HE	2.10	2.64
All Dimensions in mm		

## Suggested Soldering Pad Layout



Note:

- 1.The pad layout is for reference purposes only.
- 2.General tolerance  $\pm 0.05\text{mm}$



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