



## N-Channel MOSFET

Drain Source Voltage - 30V

Continuous Drain Current - 0.94A

### Features

- $V_{DS} = 30V$  ,  $I_D = 0.94A$
- $R_{DS(ON)} < 460\ m\Omega$  @  $V_{GS} = 4.5V$
- High Density Cell Design for Ultra Low  $R_{DS(ON)}$
- Low Gate to Drain Charge to Reduce Switching Losses
- ESD Protected Gate 2KV

### Mechanical Data

- Case: SOT23 Package
- Case Material: UL Flammability Classification Rating 94V-0
- Halogen Free
- Component in Accordance to RoHS

Note: Products with logo  or  are made by HY Electronic (Cayman) Limited.

### Ordering Information

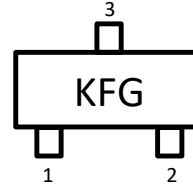
- Package :SOT23
- Reel Size :7 (inches)
- Quantity Per Reel :3,000 pcs
- Quantity One Box :45,000 pcs
- Quantity One Carton :180,000 pcs

### Package Outline



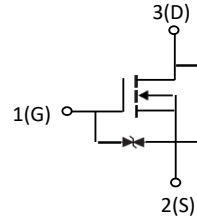
SOT23 Top View

### Marking Information



"KFG" = Product Type Marking Code

### Device Schematic & PIN Configuration



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

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	$V_{DS}$	30	V	
Gate-Source Voltage	$V_{GS}$	$\pm 8$	V	
Continuous Drain Current	$I_D$	$T_A=25\ ^\circ C^{(2)}$	0.94	A
		$T_A=70\ ^\circ C^{(2)}$	0.68	A
		$T_A=25\ ^\circ C^{(1)}$	0.75	A
Pulsed Drain Current <sup>(3)</sup>	$I_{DM}$	10	A	
Power Dissipation	$P_D$	(Note 1)	0.45	W
		(Note 2)	0.71	W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	(Note 1)	275	$^\circ C/W$
		(Note 2)	177	$^\circ C/W$
Junction Temperature	$T_J$	150	$^\circ C$	
Storage Temperature Range	$T_{STG}$	- 55 to 150	$^\circ C$	

- Notes:1.Device mounted on FR-4 substrate PC board 2oz copper, with minimum recommended pad layout.  
 2.Device mounted on 25mm X 25mm square copper plate with FR-4 substrate PC board, 2oz copper.  
 3.Device mounted on minimum recommended pad layout test board, 10µs pulse duty cycle = 1%.

Electrical Characteristics(@T<sub>J</sub> = +25°C, unless otherwise specified.)

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =10μA	BV <sub>DSS</sub>	30	-	-	V
Gate-Source Leakage Current	V <sub>DS</sub> =0V, V <sub>GS</sub> =±8V	I <sub>GSS</sub>	-	-	±3	μA
Zero Gate Voltage Drain Current	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V	I <sub>DSS</sub>	-	-	1	μA
<b>ON Characteristics</b>						
Gate to Source Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	V <sub>GS(th)</sub>	0.45	-	0.95	V
Static Drain-Source On-Resistance <sup>(4)</sup>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =200mA	R <sub>DS(on)</sub>	-	-	460	mΩ
	V <sub>GS</sub> =2.5V, I <sub>D</sub> =100mA		-	-	560	
	V <sub>GS</sub> =1.8V, I <sub>D</sub> =75mA		-	-	730	
Diode Forward Voltage	V <sub>GS</sub> =0V, I <sub>S</sub> =300mA	V <sub>SD</sub>	-	0.7	1.2	V
<b>Dynamic Characteristics <sup>(5)</sup></b>						
Input Capacitance	V <sub>DS</sub> =25V, V <sub>GS</sub> =0V, F=1MHz	C <sub>iss</sub>	-	64.3	-	pF
Output Capacitance		C <sub>oss</sub>	-	6.1	-	
Reverse Transfer Capacitance		C <sub>rss</sub>	-	4.5	-	
Gate Resistance	V <sub>DS</sub> =0V, V <sub>GS</sub> =0V, F=1MHz	R <sub>g</sub>	-	70	-	Ω
Total Gate Charge	V <sub>DS</sub> =15V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =1A	Q <sub>g</sub>	-	1.6	-	nC
Gate Source Charge		Q <sub>gs</sub>	-	0.2	-	
Gate Drain Charge		Q <sub>gd</sub>	-	0.2	-	
Turn-On Delay Time	V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =1A, R <sub>G</sub> =6Ω	t <sub>d(on)</sub>	-	3.5	-	ns
Turn-On Rise Time		t <sub>r</sub>	-	2.8	-	
Turn-Off Delay Time		t <sub>d(off)</sub>	-	38	-	
Turn-Off Fall Time		t <sub>f</sub>	-	13	-	

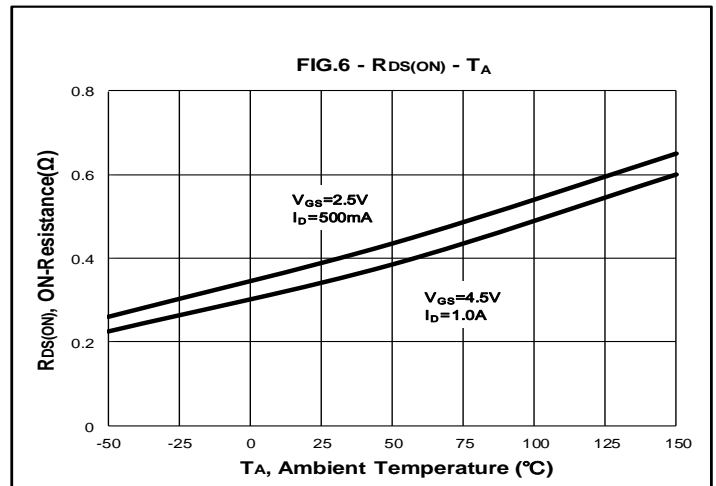
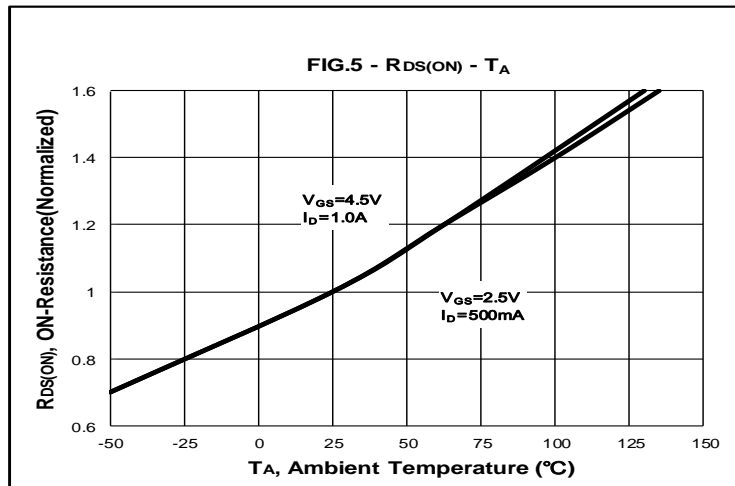
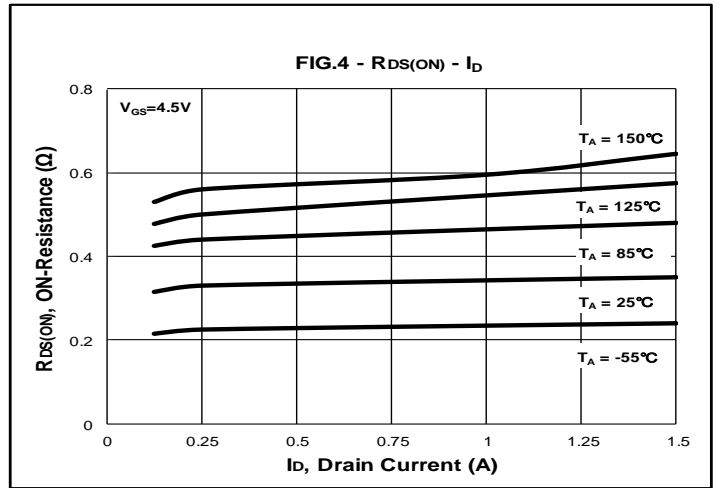
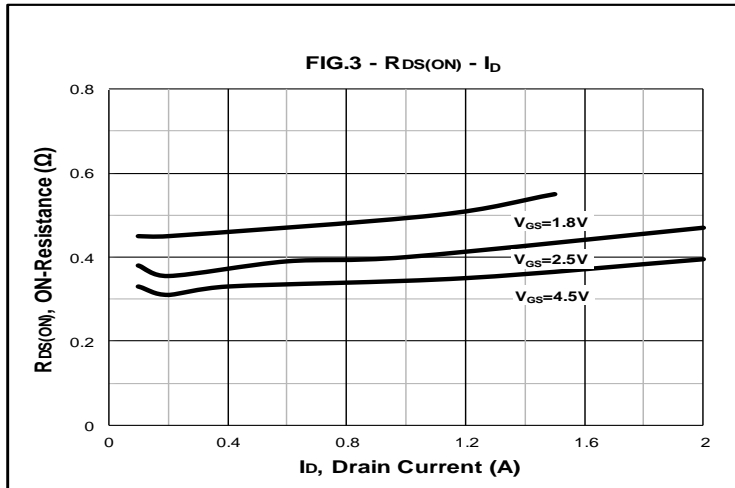
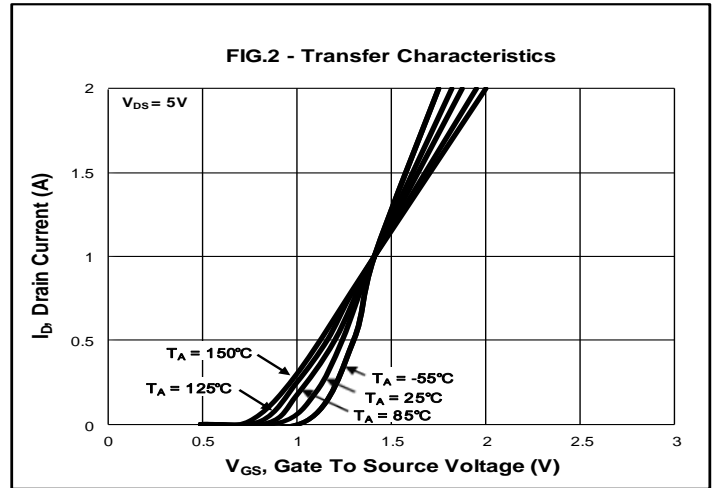
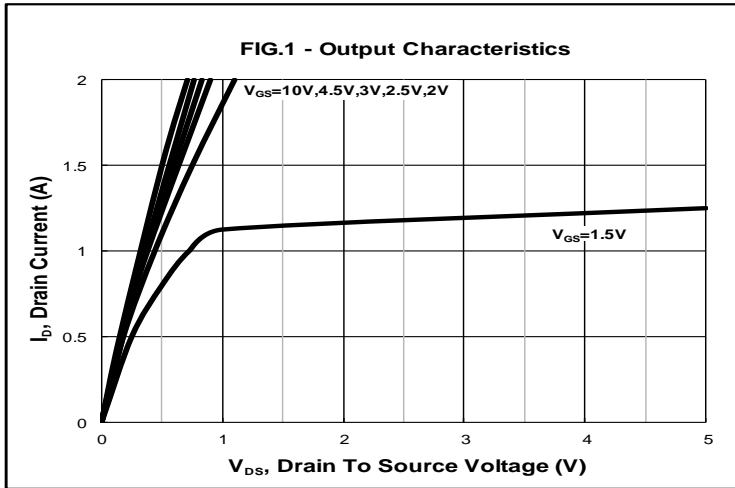
Notes: 4. Measured under pulsed conditions to minimize self-heating effect.

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

5. For design aid only, not subject to production testing.

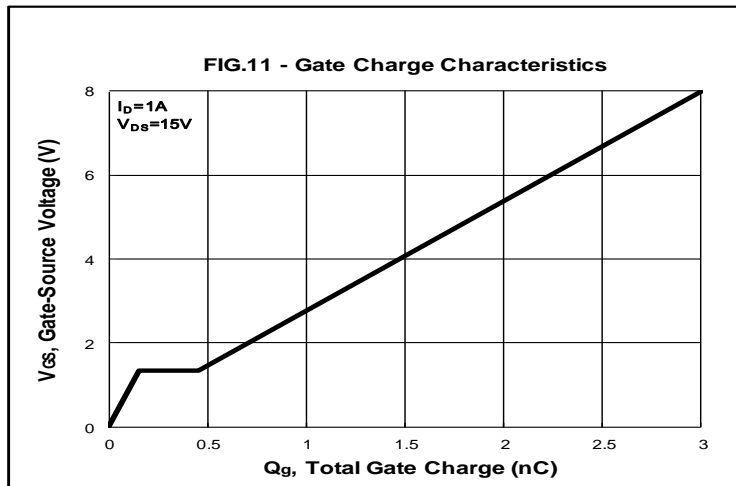
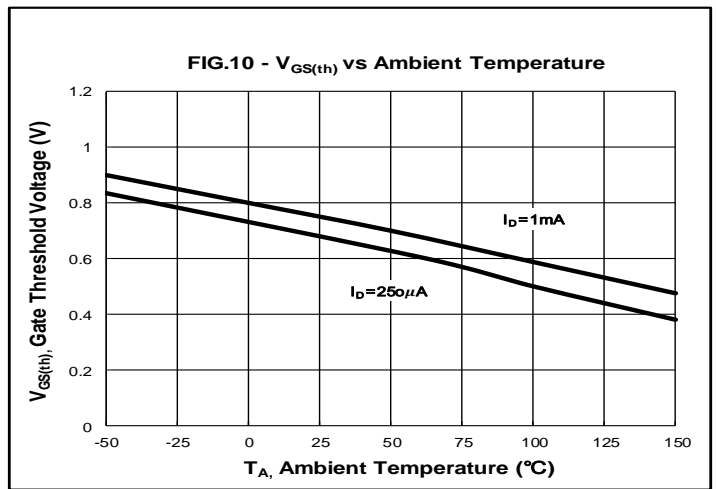
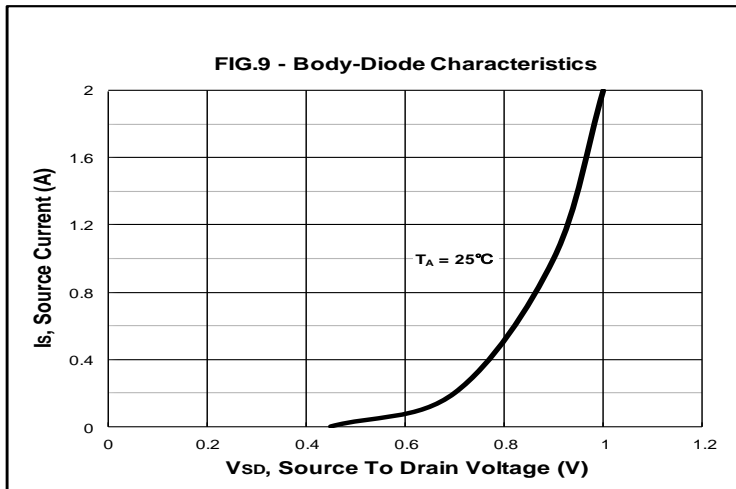
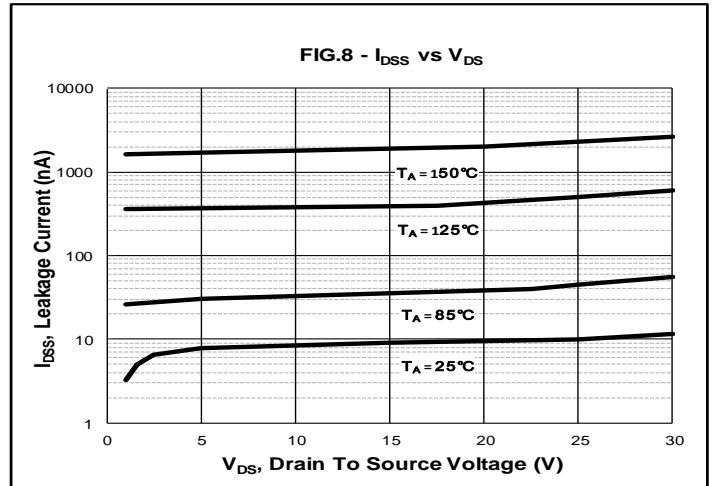
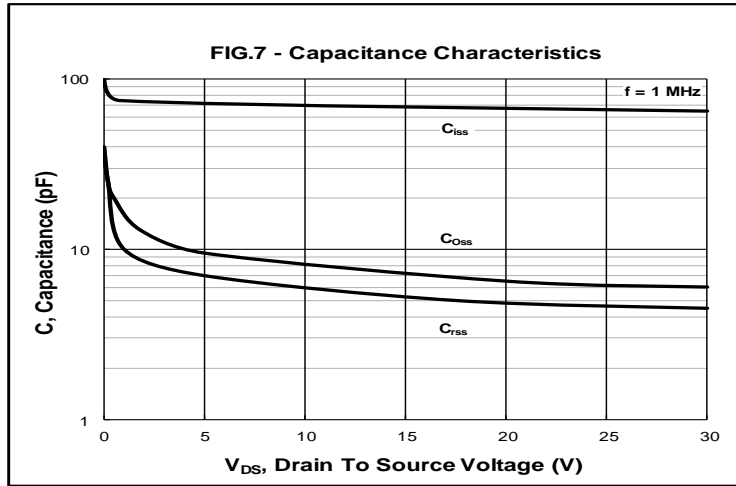


## Rating and Characteristic Curves



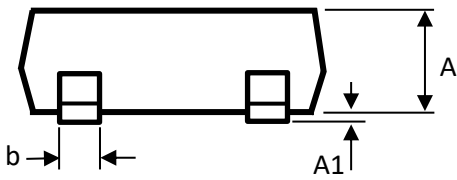
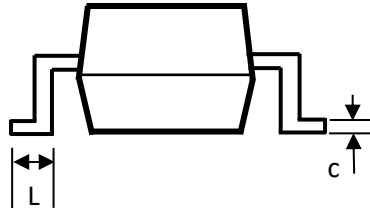
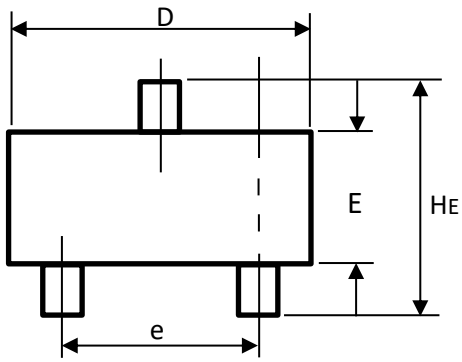


## Rating and Characteristic Curves





## Package Outline Dimensions



SOT23 Package		
Dim	Min	Max
A	0.87	1.07
A1	0.00	0.10
b	0.30	0.50
c	0.09	0.15
D	2.80	3.00
E	1.20	1.60
e	1.80	2.00
L	0.20	0.45
HE	2.25	2.55
All Dimensions in mm		



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