

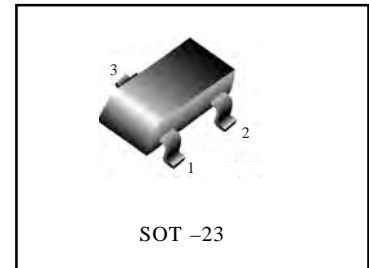
# POWER MOSFET

## 130 mAmps, 50 Volts

### P-Channel SOT-23

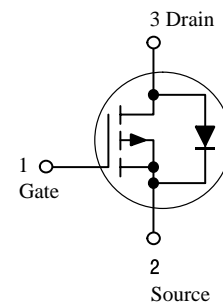
These miniature surface mount MOSFETs reduce power loss conserve energy, making this device ideal for use in small power management circuitry. Typical applications are dc-dc converters, load switching, power management in portable and battery-powered products such as computers, printers, cellular and cordless telephones.

- Energy Efficient
- Miniature SOT-23 Surface Mount Package Saves Board Space



#### MAXIMUM RATINGS (T<sub>J</sub> = 25 °C unless otherwise noted)

Rating	Symbol	Value	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>	50	Vdc
Gate-to-Source Voltage – Continuous	V <sub>GS</sub>	±20	Vdc
Drain Current			mA
– Continuous @ T <sub>A</sub> = 25 C	I <sub>D</sub>	130	
– Pulsed Drain Current (t <sub>p</sub> ≤ 10μs)	I <sub>DM</sub>	520	
Total Power Dissipation @ T <sub>A</sub> = 25 C	P <sub>D</sub>	225	mW
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	– 55 to 150	C
Thermal Resistance – Junction-to-Ambient	R <sub>θJA</sub>	556	C/W
Maximum Lead Temperature for Soldering Purposes, for 10 seconds	T <sub>L</sub>	260	C



#### ORDERING INFORMATION

Device	Marking	Shipping
FTK84LT1G	PD	3000/Tape&Reel

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25 °C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit	
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage (V <sub>GS</sub> = 0, I <sub>D</sub> = 250 μAdc)	V <sub>(BR)DSS</sub>	50	-	-	Vdc	
Zero Gate Voltage Drain Current (V <sub>DS</sub> = 25 Vdc, V <sub>GS</sub> = 0 Vdc) (V <sub>DS</sub> = 50 Vdc, V <sub>GS</sub> = 0 Vdc) (V <sub>DS</sub> = 50 Vdc, V <sub>GS</sub> = 0 Vdc, T <sub>J</sub> = 125 °C)	I <sub>DSS</sub>	-	-	0.1 15 60	μAdc	
Gate-Body Leakage Current (V <sub>GS</sub> = ±20 Vdc, V <sub>DS</sub> = 0Vdc)	I <sub>GSS</sub>	-	-	±60	μAdc	
<b>ON CHARACTERISTICS (Note 1.)</b>						
Gate-Source Threshold Voltage (V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 1.0 mAdc)	V <sub>GS(th)</sub>	0.8	-	2.0	Vdc	
Static Drain-to-Source On-Resistance (V <sub>GS</sub> = 5.0 Vdc, I <sub>D</sub> = 100 mAdc)	r <sub>DS(on)</sub>	-	5.0	10	Ω	
Transfer Admittance (V <sub>DS</sub> = 25 Vdc, I <sub>D</sub> = 100 mAdc, f = 1.0 MHz)	y <sub>FS</sub>	50	-	-	mS	
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance (V <sub>DS</sub> = 5.0 Vdc)	C <sub>iss</sub>	-	30	-	pF	
Output Capacitance (V <sub>DS</sub> = 5.0 Vdc)	C <sub>oss</sub>	-	10	-	pF	
Transfer Capacitance (V <sub>DG</sub> = 5.0 Vdc)	C <sub>rss</sub>	-	5.0	-	pF	
<b>SWITCHING CHARACTERISTICS (Note 2.)</b>						
Turn-On Delay Time	(V <sub>DD</sub> = -15 Vdc, I <sub>D</sub> = -2.5 Adc, R <sub>L</sub> = 50 Ω)	t <sub>d(on)</sub>	-	2.5	-	ns
Rise Time		t <sub>r</sub>	-	1.0	-	ns
Turn-Off Delay Time		t <sub>d(off)</sub>	-	16	-	ns
Fall Time		t <sub>f</sub>	-	8.0	-	ns
Gate Charge		Q <sub>T</sub>	-	6000	-	pC
<b>SOURCE-DRAIN DIODE CHARACTERISTICS</b>						
Continuous Current	I <sub>S</sub>	-	-	0.130	A	
Pulsed Current	I <sub>SM</sub>	-	-	0.520	A	
Forward Voltage (Note 2.)	V <sub>SD</sub>	-	2.5	-	V	

1. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2.0%.
2. Switching characteristics are independent of operating junction temperature.

## TYPICAL ELECTRICAL CHARACTERISTICS

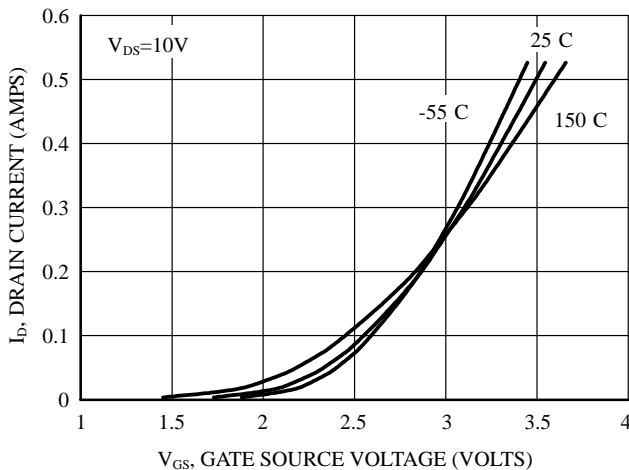


Figure 1. Transfer Characteristics

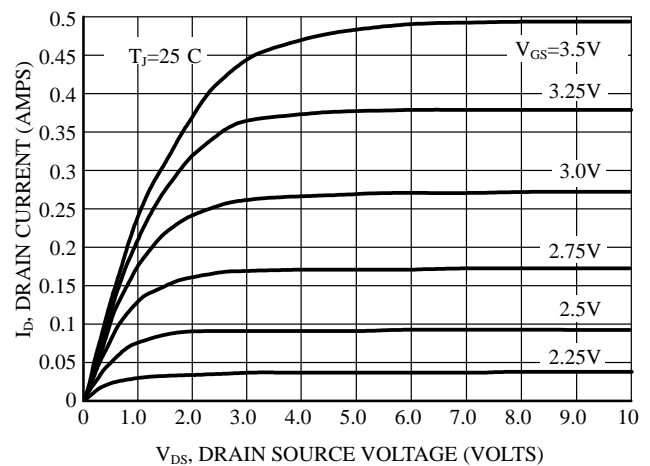


Figure 2. On-Region Characteristics

## TYPICAL ELECTRICAL CHARACTERISTICS

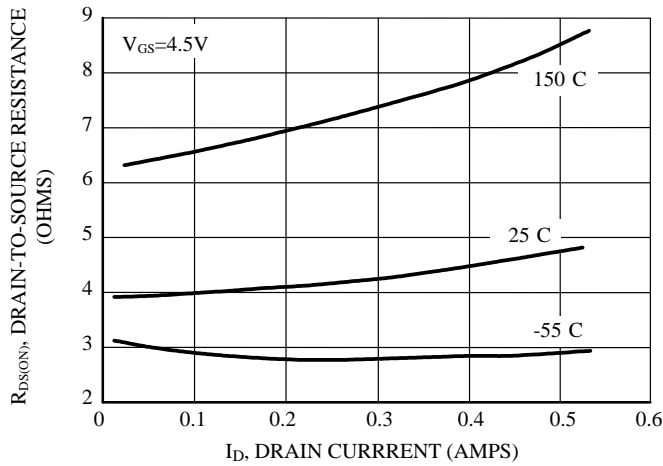


Figure 3. On-Resistance versus Drain Current

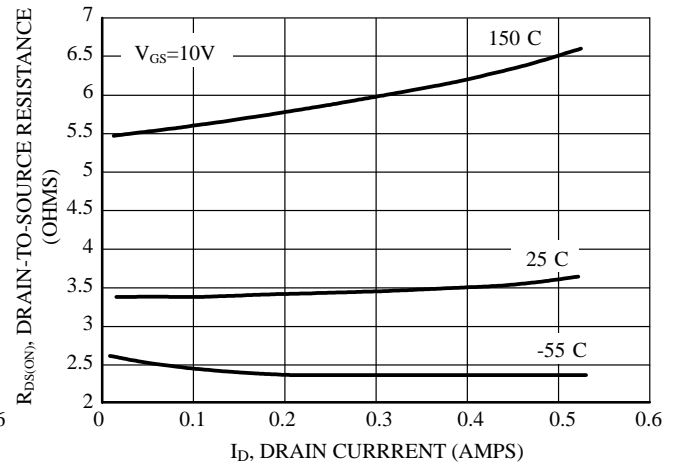


Figure 4. On-Resistance versus Drain Current

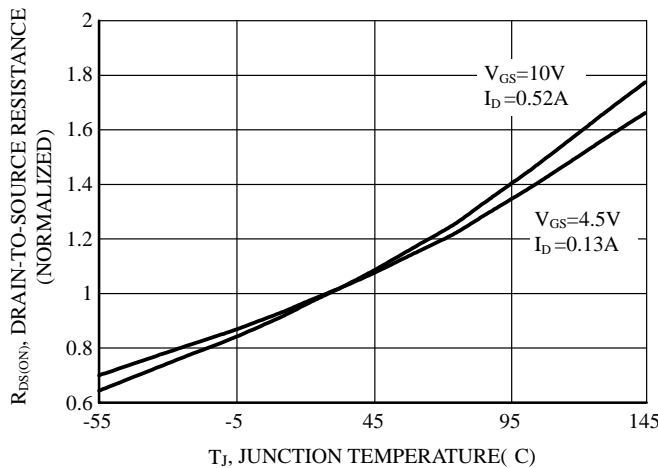


Figure 5. On-Resistance Variation with Temperature

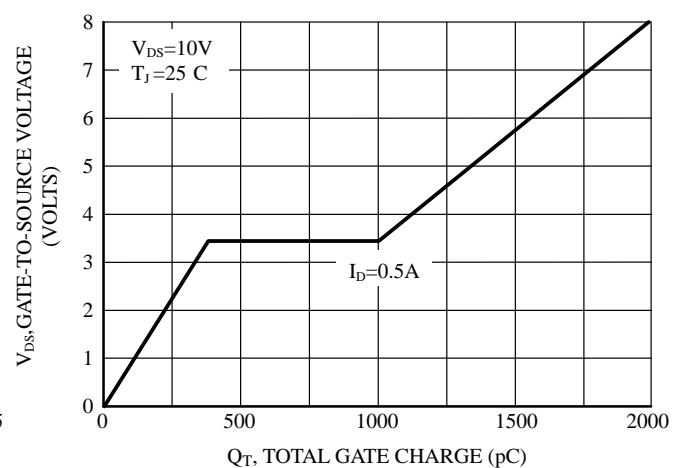


Figure 6. Gate Charge

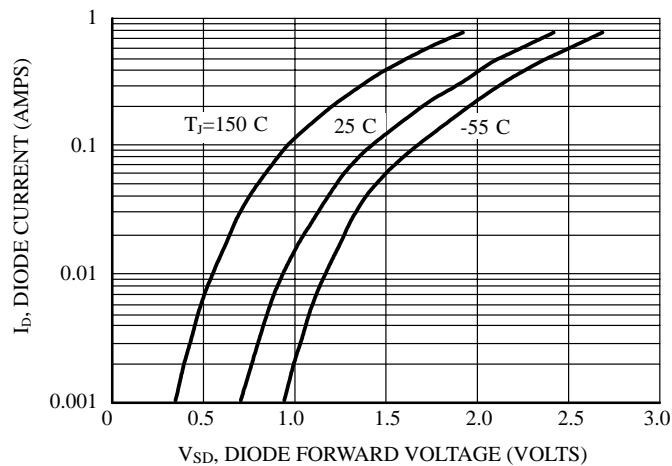
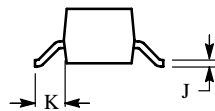
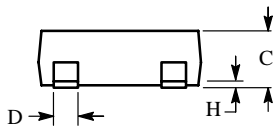
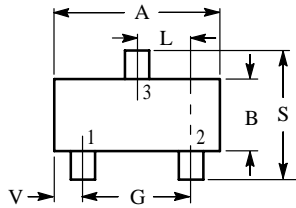


Figure 7. Body Diode Forward Voltage

## SOT-23

### NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M,1982
2. CONTROLLING DIMENSION: INCH.



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

PIN 1 BASE  
 2 EMITTER  
 3 COLLECTOR

