

DESCRIPTION

P-Channel 30V(D-S) MOSFET

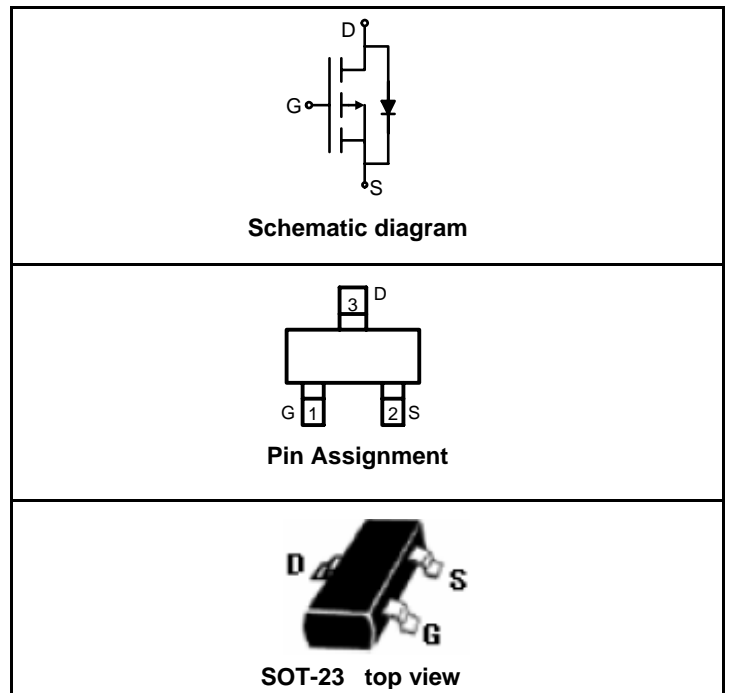
The FTK2303 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a load switch or in PWM applications.

GENERAL FEATURES

- $V_{DS} = -30V, I_D = -1.9A$
 $R_{DS(ON)} < 180m\Omega @ V_{GS} = -4.5V$
 $R_{DS(ON)} < 130m\Omega @ V_{GS} = -10V$
- High Power and current handling capability
- Lead free product is acquired
- Surface Mount Package

Application

- PWM applications
- Load switch
- Power management



PACKAGE MARKING AND ORDERING INFORMATION

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
S3 or 2303	FTK2303	SOT-23	Ø180mm	8 mm	3000 units

ABSOLUTE MAXIMUM RATINGS(TA=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous@ Current-Pulsed (Note 1)	I_D	-1.9	A
	I_{DM}	-10	A
Maximum Power Dissipation (Ta=25°C, t≤5s)	P_D	0.90	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	°C

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	140	°C/W
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ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-30V, V_{GS}=0V$			-1	µA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			±100	nA
ON CHARACTERISTICS (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0		-3.0	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-1.9A$		72	130	mΩ
		$V_{GS}=-4.5V, I_D=-1.4A$		110	180	
Forward Transconductance	g_{FS}	$V_{DS}=5.0V, I_D=-1.9A$	1			S

DYNAMIC CHARACTERISTICS (Note4)						
Input Capacitance	C_{iss}	$V_{DS}=-15V, V_{GS}=0V,$ $F=1.0MHz$		155		PF
Output Capacitance	C_{oss}			35		PF
Reverse Transfer Capacitance	C_{rss}			25		PF
SWITCHING CHARACTERISTICS (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=-15V,$ $R_L=10\Omega, I_D=-1.5A,$ $V_{GEN}=-4.5V, R_g=1\Omega$		36	44	nS
Turn-on Rise Time	t_r			37	45	nS
Turn-Off Delay Time	$t_{d(off)}$			12	18	nS
Turn-Off Fall Time	t_f			9	14	nS
Total Gate Charge	Q_g	$V_{DS}=-15V,$ $V_{GS}=-4.5V, I_D=-1.9A$		2	4	nC
Gate-Source Charge	Q_{gs}			0.6		nC
Gate-Drain Charge	Q_{gd}			1		nC
DRAIN-SOURCE DIODE CHARACTERISTICS						
Diode Forward Voltage (Note 3)	V_{SD}	$I_S=-1.5A$			-1.2	V
Diode Forward Current (Note 2)	I_S	$TC=25^\circ C$		-0.8	-1.75	A

NOTES:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production testing.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

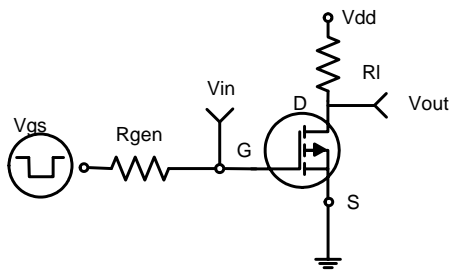


Figure1:Switching Test Circuit

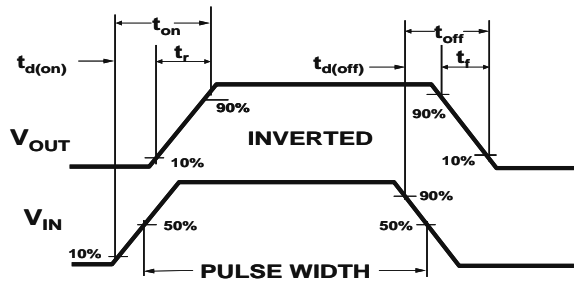
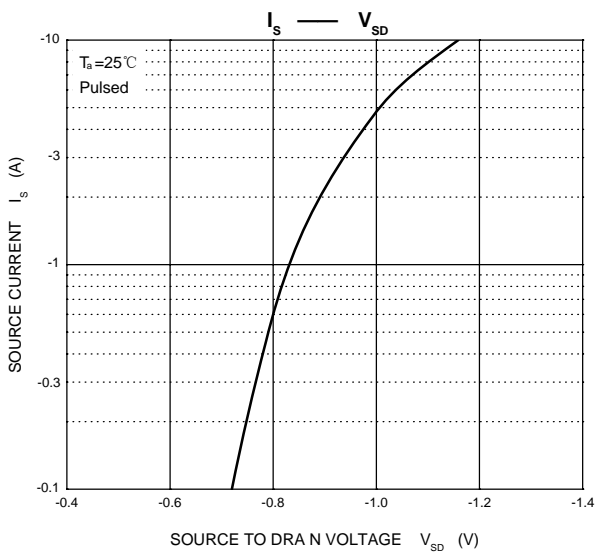
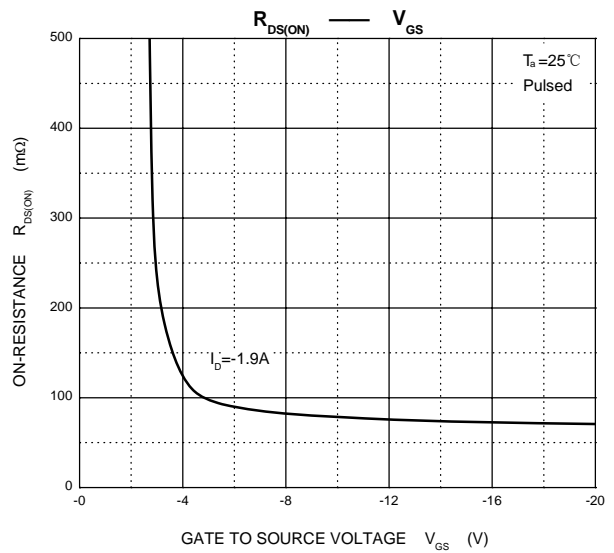
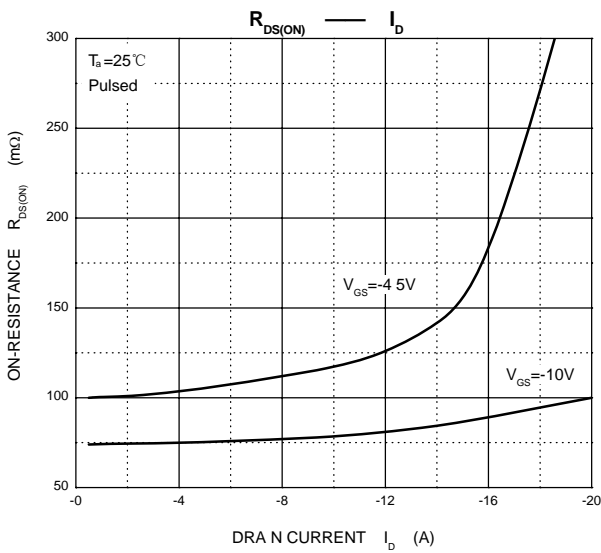
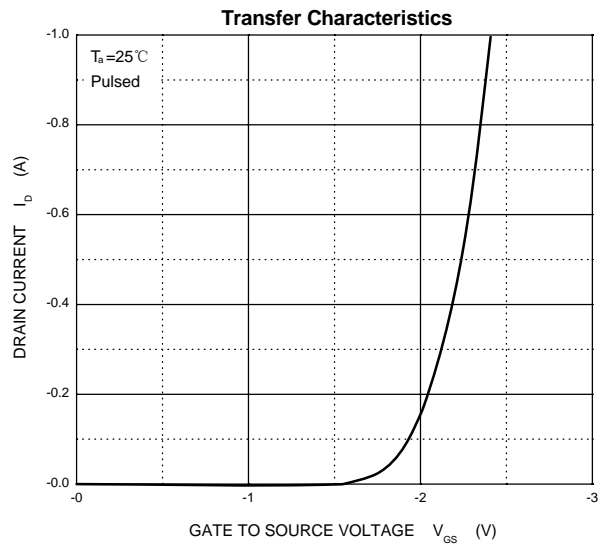
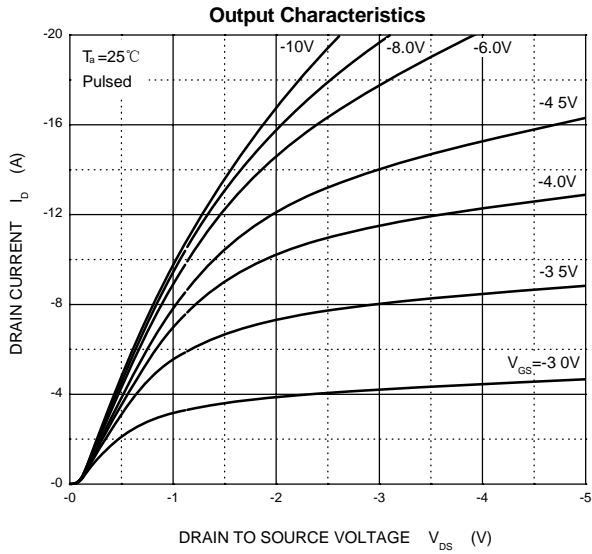


Figure 2:Switching Waveforms

Typical Characteristics



SOT-23 PACKAGE INFORMATION

Dimensions in Millimeters (UNIT:mm)

