N-Channel Enhancement Mode Field Effect Transistor

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
20V	24mΩ@ 10V	6A
	27mΩ@4.5V	
	42mΩ@2.5V	
	74mΩ@1.8V	

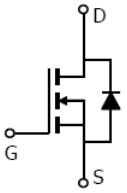
SOT–23

1. GATE
2. SOURCE
3. DRAIN

DESCRIPTION

The FTK3420 uses advanced trench technology to provide excellent $R_{DS(on)}$.This device is suitable for use as a uni-directional or bi-directional load switch.

Equivalent Circuit



MARKING : 3420 or R20

Maximum ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±12	
Continuous Drain Current	I_D	6	A
Pulsed Drain Current	I_{DM}	25	
Maximum Body-Diode Continuous Current	I_S	2	
Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{stg}	-55 ~+150	

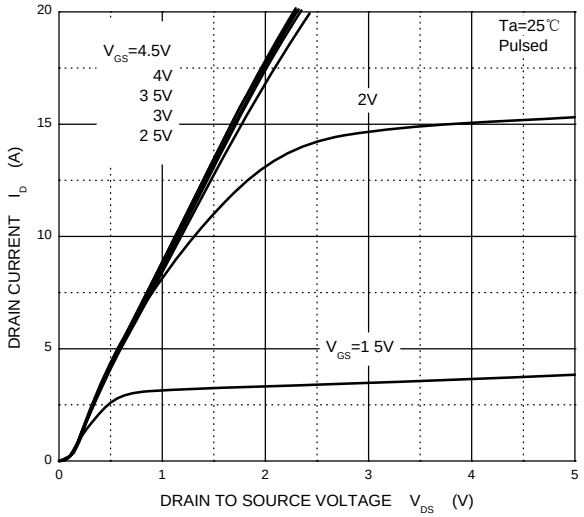
Electrical characteristics (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	$V_{(BR)\ DSS}$	V_{GS} = 0V, I_D =250μA	20			V
Gate-source leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±12V			±100	nA
Zero gate voltage drain current	I_{DSS}	V_{DS} =16V, V_{GS} =0V			1.0	μA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.5	0.7	1.0	V
Drain-source on-state resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =6.0A		19	24	mΩ
		V_{GS} =4.5V, I_D =5.0A		22	27	
		V_{GS} =2.5V, I_D =4.0A		35	42	
		V_{GS} =1.8V, I_D =2.0A			74	
Diode forward voltage	V_{SD}	V_{GS} =0V,I_S=1A		0.75	1	V
Forward transconductance	g_{fS}	V_{DS} =5V, I_D =3.8A	4			S
DYNAMIC PARAMETERS*						
Input capacitance	C_{iss}	V_{DS} =10V,V_{GS} =0V,f =1MHz		630		pF
Output capacitance	C_{oss}			164		
Reverse transfer capacitance	C_{rss}			137		
Gate resistance	R_g	V_{DS} =0V,V_{GS} =0V,f =1MHz		1.5		Ω
SWITCHING PARAMETERS*						
Turn-on delay time	$t_{d(on)}$	V_{GS}=5V,V_{DS}=10V, R_L=1.7Ω,R_{GEN}=6Ω		5.5		ns
Rise time	t_r			14		
Turn-off delay time	$t_{d(off)}$			29		
Fall time	t_f			10.2		

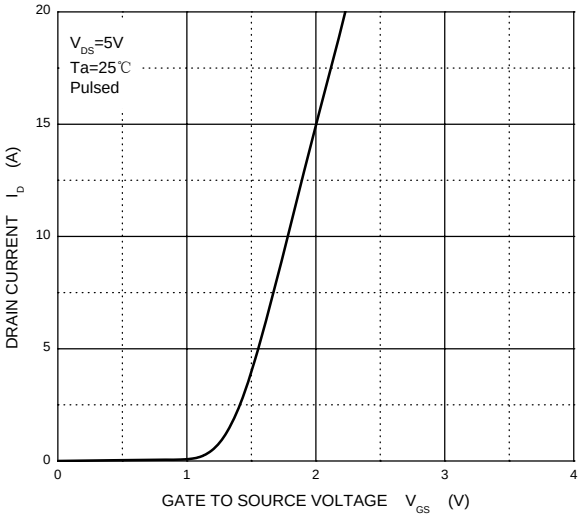
*These parameters have no way to verify.

Typical Characteristics

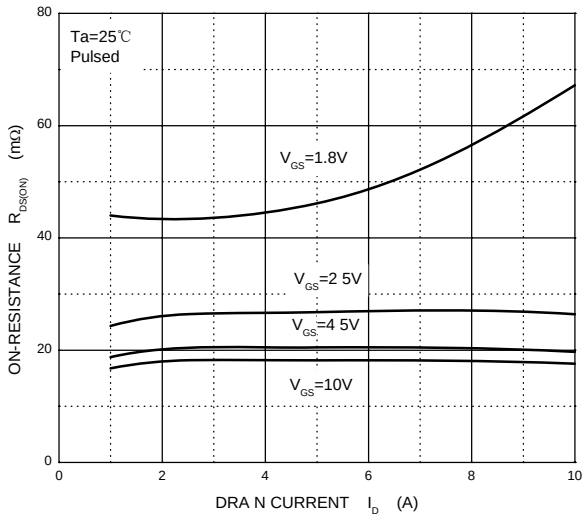
Output Characteristics



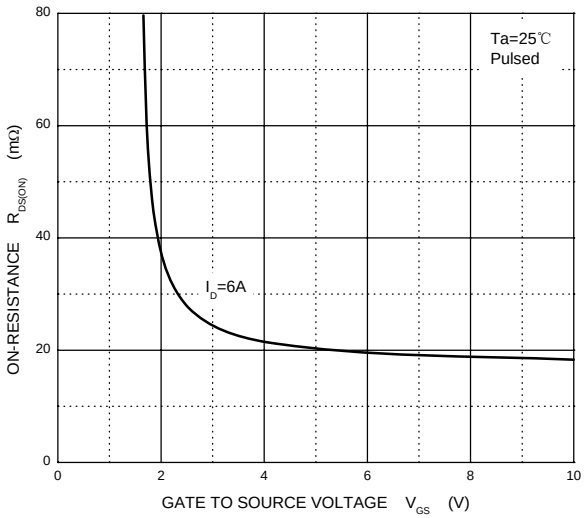
Transfer Characteristics



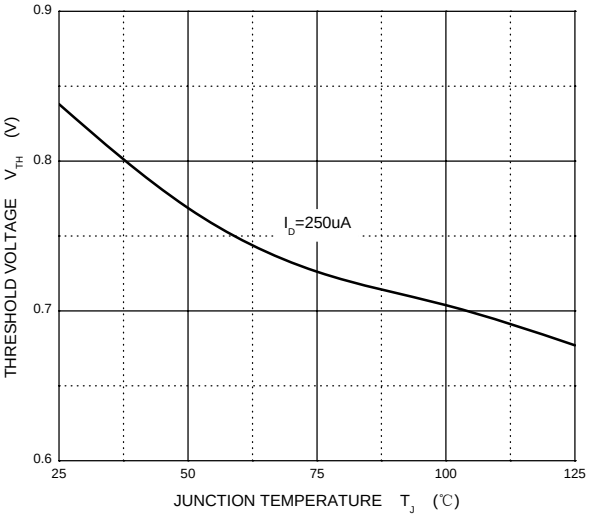
$R_{DS(ON)}$ —— I_D



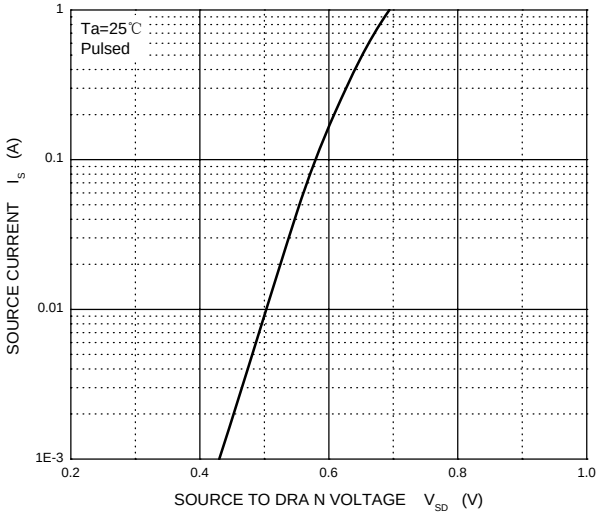
$R_{DS(ON)}$ —— V_{GS}



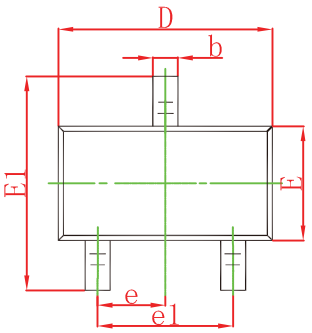
Threshold Voltage

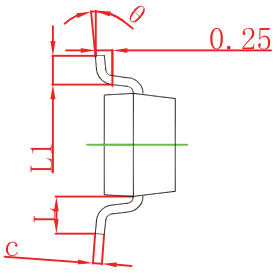


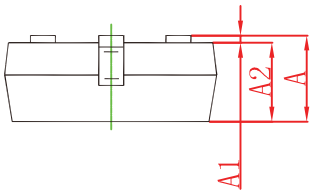
I_S —— V_{SD}



SOT-23 Package Outline Dimensions

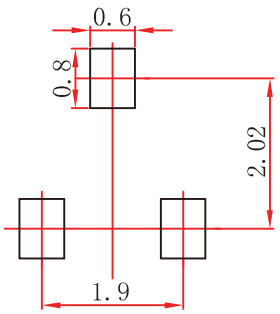






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 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°	6°

SOT-23 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.