Fuji Power MOSFET SuperFAP-G series Target Specification **PRELIMINARY**

2SK3683-01MR (500V/0.38Ω/19A)

1) Package TO-220F15R

2) Absolute Maximum Ratings (Tc=25℃ unless otherwise specified)

Items	Symbols	Ratings	Units	
Drain-Source Voltage	V_{DS}	500	V	
Continuous Drain Current	I_D	±19	A	
Pulsed Drain Current	$I_{D(pulse)}$	±76	A	
Gate-Source Voltage	V_{GS}	±30	V	
Repetitive and Non-Repetitive Maximum Avalanche Current	I_{AR}	19	A	
Non-Repetitive Maximum Avalanche Energy	E_{AS}	245.3	mJ	*1
Maximum Drain-Source dV/dt	dVDS/dt	20	kV/us	
Peak Diode recovery dV/dt	dV/dt	5	kV/us	*2
Maximum Power Dissipation	$P_{D\ @Tc=25℃}$	95	W	
	$P_{D\ @Ta=25℃}$	2.16	W	
Operating and Storage Temperature range	T_{ch}	150	℃	
	T_{stg}	-55 ～ +150	℃	

3)Electrical Characteristics (Tch=25℃ unless otherwise specified)

Items	Symbols	Test Conditions		min.	typ.	max.	Units
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=250uA	V_{GS}=0V	500	---	---	V
Gate Threshold Voltage	V_{GS}(th)	I_D=250uA	V_{DS}=V_{GS}	3.0	---	5.0	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=500V	T_{ch}=25℃	---	---	25	μA
		V_{GS}=0V	T_{ch}=125℃	---	---	250	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±30V	V_{DS}=0V	---	---	100	μA
Drain-Source On-State Resistance	R_{DS}(on)	I_D=9.5A	VGS=10V	---	---	0.38	Ω
Input Capacitance	C_{iss}	V_{DS}=25V		---	1580	2370	pF
Output Capacitance	C_{oss}	V_{GS}=0V		---	240	360	
Reverse Transfer Capacitance	C_{rss}	f=1MHz		---	12	18	
Total Gate Charge	Qg	Vcc=250V		---	32	48	nC
Gate to Source Charge	Qgs	I_D=19A		---	16	24	
Gate to Drain (Miller) Charge	Qgd	V_{GS}=10V		---	12	18	
Avalanche Capability	I_{AV}	L=1.25mH	Tch=25℃	19	---	---	A
Diode Forward On-Voltage	V_{SD}	I_F=19A,VGS=0V,Tch=25℃		---	1.0	1.5	V

4) Thermal Characteristics

Items	Symbols	Test Conditions	min.	typ.	max.	Units
Channel to Case	Rth(ch-c)				1.316	℃/W
Channel to Ambient	Rth(ch-a)				58.0	℃/W

*1 L=1.25mH,Vcc=50V

*2 $I_F \leq -I_D$,-di/dt=50A/μs,Vcc≤BV_{DSS},Tch≤150°C

	DATE	NAME	APPROVED
DRAWN	Sep.-02-'02	Y.Hara	
CHECKED	Sep.-02-'02	T.Yamada	T. HOSEN

REVISIONS

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DWG.NO. MT5F12582 1/1

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