

2SK3683-01MR (500V/0.38Ω/19A)

1) Package

TO-220F15R

2) Absolute Maximum Ratings (Tc=25°C 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
Maximum Drain-Source dV/dt	dV/dt	20	kV/us
Peak Diode recovery dV/dt	dV/dt	5	kV/us
Maximum Power Dissipation	P_D @Tc=25°C	95	W
	P_D @Ta=25°C	2.16	W
Operating and Storage Temperature range	T_{ch}	150	
	T_{stg}	-55 ~ +150	

*1

*2

3)Electrical Characteristics (Tch=25°C unless otherwise specified)

Items	Symbols	Test Conditions	min.	typ.	max.	Units
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=250\mu A$ $V_{GS}=0V$	500	---	---	V
Gate Threshold Voltage	$V_{GS(th)}$	$I_D=250\mu A$ $V_{DS}=V_{GS}$	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}	$V_{GS}=\pm 30V$ $V_{DS}=0V$	---	---	100	μA
Drain-Source On-State Resistance	$R_{DS(on)}$	$I_D=9.5A$ $V_{GS}=10V$	---	---	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	Q_g	$V_{cc}=250V$	---	32	48	nC
Gate to Source Charge	Q_{gs}	$I_D=19A$	---	16	24	
Gate to Drain (Miller) Charge	Q_{gd}	$V_{GS}=10V$	---	12	18	
Avalanche Capability	I_{AV}	L=1.25mH Tch=25	19	---	---	A
Diode Forward On-Voltage	V_{SD}	$I_F=19A, V_{GS}=0V, T_{ch}=25^\circ C$	---	1.0	1.5	V

4) Thermal Characteristics

Items	Symbols	Test Conditions	min.	typ.	max.	Units
Channel to Case	$R_{th(ch-c)}$				1.316	/W
Channel to Ambient	$R_{th(ch-a)}$				58.0	/W

*1 L=1.25mH, Vcc=50V

*2 $I_F \leq -I_D$, $-di/dt=50A/\mu s$, $V_{cc} \leq BV_{DSS}$, $T_{ch} \leq 150^\circ C$

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DATE	NAME	APPROVED	Fuji Electric Co., Ltd.	
DRAWN Sep. -02-'02	Y. Hara		DWG. NO. MT5F12582 1/1	
CHECKED Sep. -02-'02	T. Yamada	T. HOSEN		

REVISIONS

MA4LE