

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 *1
Maximum Drain-Source dV/dt	dV _{DS} /dt	20	kV/us
Peak Diode recovery dV/dt	dV/dt	5	kV/us *2
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} T _{stg}	150 -55 ~ +150	

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 =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 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, Tch=25°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, V_{CC}=50V*2 I_F ≤ -I_D, -di/dt=50A/μs, V_{CC} ≤ BV_{DSS}, Tch ≤ 150°C

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