

2SK3689-01 (600V/0.54Ω/16A)

1) Package

TO-247

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

Items	Symbols	Ratings	Units
Drain-Source Voltage	V_{DS}	600	V
Continuous Drain Current	I_D	±16	A
Pulsed Drain Current	$I_{D(pulse)}$	±64	A
Gate-Source Voltage	V_{GS}	±30	V
Repetitive and Non-Repetitive Maximum Avalanche Current	I_{AR}	16	A
Non-Repetitive Maximum Avalanche Energy	E_{AS}	242.7	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	235	W
	P_D @Ta=25°C	2.50	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}	$I_D=250\mu A$ $V_{GS}=0V$	600	---	---	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}	$V_{DS}=600V$ $T_{ch}=25$	---	---	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	$R_{DS(on)}$	$I_D=8A$ $V_{GS}=10V$	---	---	0.54	Ω
Input Capacitance	C_{iss}	$V_{DS}=25V$	---	1590	2390	pF
Output Capacitance	C_{oss}	$V_{GS}=0V$	---	210	315	
Reverse Transfer Capacitance	C_{rss}	$f=1MHz$	---	11	16.5	
Total Gate Charge	Q_g	$V_{cc}=300V$	---	33	49.5	nC
Gate to Source Charge	Q_{gs}	$I_D=16A$	---	16	24	
Gate to Drain (Miller) Charge	Q_{gd}	$V_{GS}=10V$	---	11.5	17.3	
Avalanche Capability	I_{AV}	$L=1.74mH$ $T_{ch}=25$	16	---	---	A
Diode Forward On-Voltage	V_{SD}	$I_F=16A, V_{GS}=0V, T_{ch}=25^\circ C$	---	1.0	1.5	V

4) Thermal Characteristics

Items	Symbols	Test Conditions	min.	typ.	max.	Units
Channel to Case	$R_{th(ch-c)}$				0.532	/W
Channel to Ambient	$R_{th(ch-a)}$				50.0	/W

*1 L=1.74mH, Vcc=60V

*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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REVISIONS

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