

Fuji power MOSFET Specification

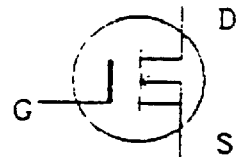
2 S K 1 8 7 6

1. Scope

This specifies Fuji power MOSFET 2 S K 1 8 7 6

2. Outline

- I) Construction N-channel enhancement mode power MOSFET
- II) Application for switching
- III) Outview TO-220 (MK5C27106)



3. Absolute maximum ratings at $T_c=25^\circ\text{C}$ (unless otherwise specified)

Description	Symbol	Characteristics	Unit	Remarks
Drain-source voltage	V_{DS}	450	V	
Drain-gate voltage	V_{DGR}	450	V	$R_{GS} = 20\text{ K}\Omega$
Continuous Drain current	I_D	10	A	
Pulsed drain current	I_{Dpulse}	35	A	
Gate-source voltage	V_{GS}	± 30	V	
Maximum power dissipation	P_D	80	W	
Operating and storage temperature range	T_{ch}	150	$^\circ\text{C}$	
	T_{stg}	$-55 \sim +150$	$^\circ\text{C}$	

4. Electrical characteristics at $T_c=25^\circ\text{C}$ (unless otherwise specified)

Static ratings

Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Drain-source breakdown voltage	$B V_{DSS}$	$I_D = 1\text{ mA}$ $V_{GS} = 0\text{ V}$	450			V
Gate threshold voltage	$V_{GS(th)}$	$I_D = 1\text{ mA}$ $V_{DS} = V_{GS}$	2.5	3.5	5.0	V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 450\text{ V}$ $T_{ch} = 25^\circ\text{C}$		10	500	μA
	I_{DSS}	$V_{GS} = 0\text{ V}$ $T_{ch} = 125^\circ\text{C}$		0.2	1.0	mA
Gate-source leakage current	I_{GSS}	$V_{GS} = \pm 30\text{ V}$ $V_{DS} = 0\text{ V}$		10	100	nA
Drain-source on-state resistance	$R_{DS(on)}$	$I_D = 5\text{ A}$ $V_{GS} = 10\text{ V}$		0.5	0.65	Ω

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Dynamic ratings

Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Forward transconductance	g_{fs}	$I_D = 5A$ $V_{DS} = 25V$	4.0	6.5		S
Input capacitance	C_{iss}	$V_{DS} = 25V$ $V_{GS} = 0V$ $f = 1MHz$		1200	1800	pF
Output capacitance	C_{oss}			160	240	pF
Reverse transfer capacitance	C_{rss}			70	100	pF
Turn-on time	$t_{d(on)}$	$V_{CC} = 300V$ $V_{GS} = 10V$ $I_D = 10A$ $R_{GS} = 25\Omega$		30	45	ns
	t_r			80	120	ns
Turn-off time	$t_{d(off)}$			160	240	ns
	t_f			80	120	ns

Reverse diode

Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Continuous reverse drain current	I_{DR}	$T_C = 25^\circ C$			10	A
Pulsed reverse deain current	I_{DRM}	$T_C = 25^\circ C$			35	A
Diode forward on-voltage	V_{SD}	$I_F = 2 \times I_{DR}$ $V_{GS} = 0V, T_{ch} = 25^\circ C$		1.1	1.65	V
Reverse recovery time	t_{rr}	$I_F = I_{DR}$ $dI_F/dt = 100A/\mu S$ $T_{ch} = 25^\circ C$		500		ns
Reverse recovery charge	Q_{rr}			3.5		μC

5. Thermal resistance

Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Thermal resistance	$R_{th_{ch-c}}$				1.56	$^\circ C/W$
	$R_{th_{ch-a}}$				75	$^\circ C/W$

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