

FK8V0302

Silicon N-channel MOS FET

For lithium-ion secondary battery protection circuits

■ Overview

FK8V0302 is N-channel single type small signal MOS FET adopted small size surface mounting package.

■ Features

- Low drain-source ON resistance: $R_{DS(on)}$ typ. = 5.4 Ω ($V_{GS} = 4.5$ V)
- Small size surface mounting package: WMini8-F1
- Contributes to miniaturization of sets, reduction of component count.
- Eco-friendly Halogen-free package

■ Packaging

FK8V03020L Embossed type (Thermo-compression sealing): 3 000 pcs / reel (standard)

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Drain-source surrender voltage	V_{DSS}	33	V
Gate-source surrender voltage	V_{GSS}	± 20	V
Drain current *1	I_D	14	A
		$t = 10$ s	
Peak drain current *1,2	I_{DP}	56	A
Source current (Body diode)	I_S (BD)	14	A
Avalanche current *3	I_{AS}	60	A
Power dissipation *1	P_D	1	W
		$t = 10$ s	
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Note) *1: Mounted on a glass epoxy PC board: 25.4 mm \times 25.4 mm \times 0.8 mm

*2: Pulse test: Ensure that the channel temperature does not exceed 150 $^\circ\text{C}$

*3: $V_{DS} = 24$ V, $V_{GS} = 10$ V, $L = 10$ μH

■ Package

• Code

WMini8-F1

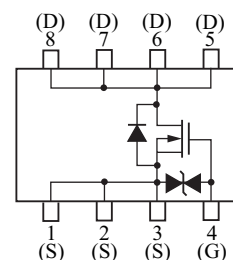
Package dimension clicks here.→

• Pin Name

1: Source	5: Drain
2: Source	6: Drain
3: Source	7: Drain
4: Gate	8: Drain

■ Marking Symbol: 3B

■ Internal Connection



■ Electrical Characteristics $T_a = 25^{\circ}\text{C} \pm 3^{\circ}\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source surrender voltage	V_{DSS}	$I_D = 1 \text{ mA}, V_{GS} = 0$	33			V
Drain-source cutoff current	I_{DSS}	$V_{DS} = 33 \text{ V}, V_{GS} = 0$			1	μA
Gate-source cutoff current	I_{GSS}	$V_{GS} = \pm 16 \text{ V}, V_{DS} = 0$			± 10	μA
Gate threshold voltage	V_{TH}	$I_D = 2.2 \text{ mA}, V_{DS} = 10 \text{ V}$	1.0		3.0	V
Drain-source ON resistance	$R_{DS(on)}$	$I_D = 7 \text{ A}, V_{GS} = 10 \text{ V}$		3.6	4.6	m Ω
		$I_D = 7 \text{ A}, V_{GS} = 4.5 \text{ V}$		5.4	9.8	
Short-circuit input capacitance (Common source)	C_{iss}	$V_{DS} = 10 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$		1500		pF
Short-circuit output capacitance (Common source)	C_{oss}			300		pF
Reverse transfer capacitance (Common source)	C_{rss}			200		pF
Turn-on delay time *2	$t_{d(on)}$	$V_{DD} = 15 \text{ V}, V_{GS} = 0 \text{ V to } 10 \text{ V}, I_D = 7 \text{ A}$		10		ns
Rise time *2	t_r			5		ns
Turn-off delay time *2	$t_{d(off)}$	$V_{DD} = 15 \text{ V}, V_{GS} = 10 \text{ V to } 0 \text{ V}, I_D = 7 \text{ A}$		200		ns
Fall time *2	t_f			150		ns
Gate charge load	Q_g	$V_{DD} = 15 \text{ V}, V_{GS} = 0 \text{ V to } 4.5 \text{ V}, I_D = 14 \text{ A}$		14		nC
Gate-source charge	Q_{gs}			4		nC
Gate-drain charge	Q_{gd}			6		nC

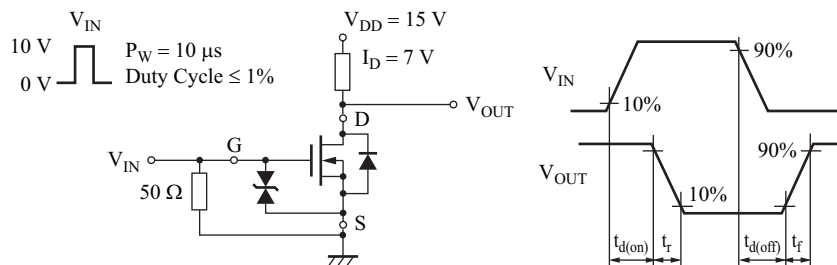
Body diode characteristics

Drain-source voltage *1	V_{SD}	$I_S = 7 \text{ A}, V_{GS} = 0$		0.8	1.2	V
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Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. *1: Pulse test: Ensure that the channel temperature does not exceed 150°C

*2: Measurement circuit



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