

FX20ASJ-03F

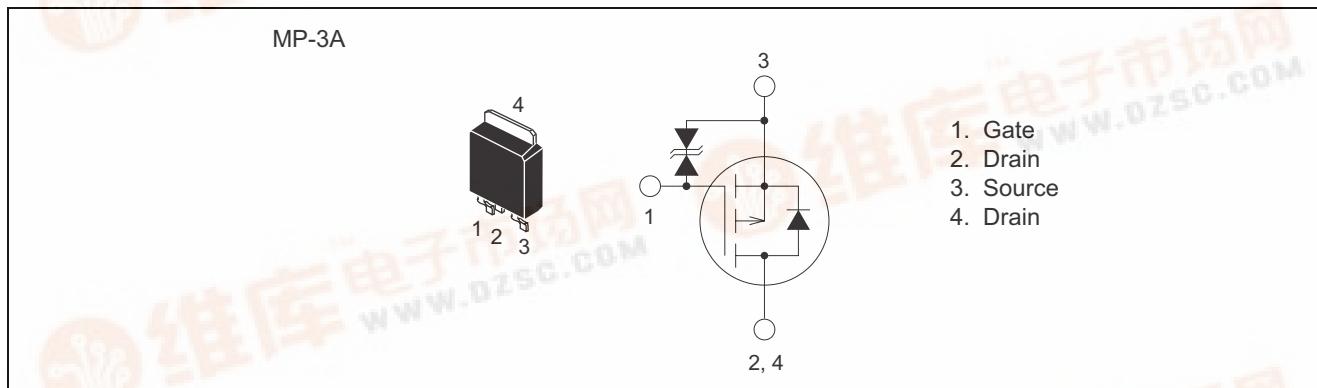
High-Speed Switching Use Pch Power MOS FET

REJ03G0248-0100
Rev.1.00
Aug.20.2004

Features

- Drive voltage : 4 V
- V_{DSS} : - 30 V
- $r_{DS(ON)}(max)$: 0.12 Ω
- I_D : - 20 A

Outline



Applications

Motor control, lamp control, solenoid control, DC-DC converters, etc.

Maximum Ratings

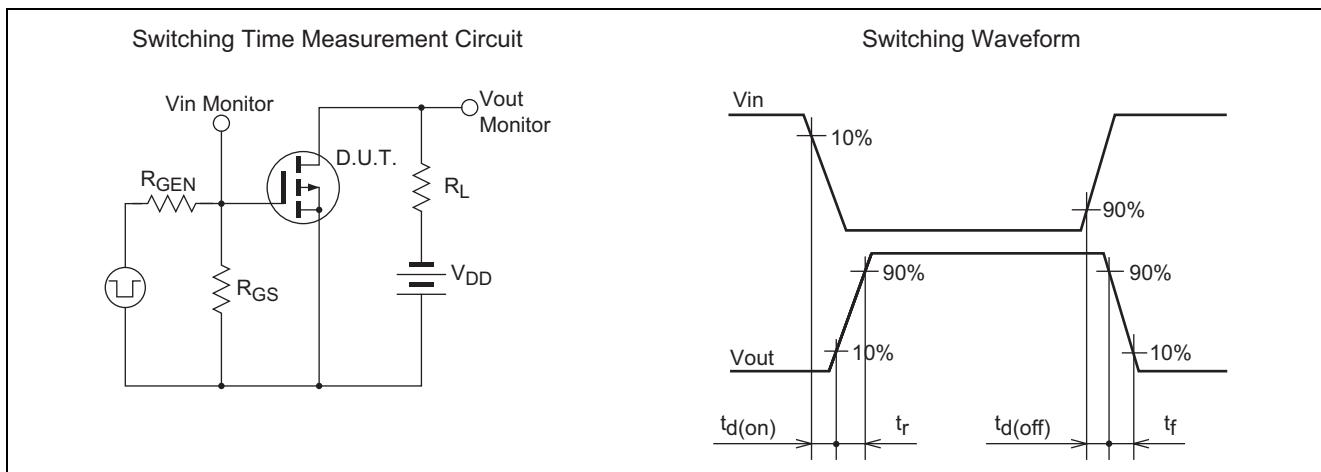
(Tc = 25°C)

Parameter	Symbol	Ratings	Unit	Conditions
Drain-source voltage	V_{DSS}	-30	V	$V_{GS} = 0 \text{ V}$
Gate-source voltage	V_{GSS}	± 20	V	$V_{DS} = 0 \text{ V}$
Drain current	I_D	-20	A	
Drain current (Pulsed)	I_{DM}	- 40	A	
Avalanche current (Pulsed)	I_{DA}	-5	A	$L = 10 \mu\text{H}$
Source current	I_S	-20	A	
Source current (Pulsed)	I_{SM}	- 40	A	
Maximum power dissipation	P_D	25	W	
Channel temperature	T_{ch}	- 55 to +150	°C	
Storage temperature	T_{stg}	- 55 to +150	°C	
Mass	—	0.32	g	Typical value

Electrical Characteristics

(Tch = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Drain-source breakdown voltage	$V_{(BR)DSS}$	-30	—	—	V	$I_D = 1 \text{ mA}, V_{GS} = 0 \text{ V}$
Gate-source breakdown voltage	$V_{(BR)GSS}$	± 20	—	—	V	$I_G = \pm 100 \mu\text{A}, V_{DS} = 0 \text{ V}$
Drain-source leakage current	I_{DSS}	—	—	100	μA	$V_{DS} = -30 \text{ V}, V_{GS} = 0 \text{ V}$
Gate-source leakage current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 20 \text{ V}, V_{DS} = 0 \text{ V}$
Gate-source threshold voltage	$V_{GS(\text{th})}$	-1.5	-2.0	-2.5	V	$I_D = -1 \text{ mA}, V_{DS} = -10 \text{ V}$
Drain-source on-state resistance	$r_{DS(\text{ON})}$	—	0.085	0.12	Ω	$I_D = -10 \text{ A}, V_{GS} = -10 \text{ V}$
Drain-source on-state resistance	$r_{DS(\text{ON})}$	—	0.145	0.20	Ω	$I_D = -2 \text{ A}, V_{GS} = -4 \text{ V}$
Drain-source on-state voltage	$V_{DS(\text{ON})}$	—	-0.85	-1.2	V	$I_D = -10 \text{ A}, V_{GS} = -10 \text{ V}$
Forward transfer admittance	$ y_{fs} $	—	8	—	S	$I_D = -10 \text{ A}, V_{DS} = -5 \text{ V}$
Input capacitance	C_{iss}	—	500	—	pF	$V_{DS} = -10 \text{ V}, V_{GS} = 0 \text{ V},$ $f = 1\text{MHz}$
Output capacitance	C_{oss}	—	100	—	pF	
Reverse transfer capacitance	C_{rss}	—	80	—	pF	
Turn-on delay time	$t_{d(\text{on})}$	—	6	—	ns	$V_{DD} = -15 \text{ V}, I_D = -10 \text{ A},$ $V_{GS} = -10 \text{ V},$ $R_{\text{GEN}} = R_{GS} = 50 \Omega$
Rise time	t_r	—	8	—	ns	
Turn-off delay time	$t_{d(\text{off})}$	—	40	—	ns	
Fall time	t_f	—	15	—	ns	
Source-drain voltage	V_{SD}	—	-1.0	-1.5	V	$I_S = -10 \text{ A}, V_{GS} = 0 \text{ V}$
Thermal resistance	$R_{\text{th(ch-c)}}$	—	—	5.0	$^{\circ}\text{C/W}$	Channel to case
Reverse recovery time	t_{rr}	—	30	—	ns	$I_S = -10 \text{ A}, \text{dis/dt} = -50 \text{ A}/\mu\text{s}$



Package Dimensions

MP-3A

EIAJ Package Code	JEDEC Code	Mass (g) (reference value)	Lead Material
—	—	0.32	Cu alloy

The figure contains three views of the MP-3A package: a top view showing lead spacing and overall width; a side view showing height and lead thickness; and a bottom view showing lead pitch and lead thickness. Dimension tables are provided for each view.

Symbol	Dimension in Millimeters		
	Min	Typ	Max
A	—	—	—
A ₁	—	—	—
A ₂	—	—	—
b	—	—	—
D	—	—	—
E	—	—	—
e	—	—	—
x	—	—	—
y	—	—	—
y ₁	—	—	—
ZD	—	—	—
ZE	—	—	—

Note 1) The dimensional figures indicate representative values unless otherwise the tolerance is specified.

Order Code

Lead form	Standard packing	Quantity	Standard order code	Standard order code example
Surface-mounted type	Taping	3000	Type name – T +Direction (1 or 2) +3	FX20ASJ-03F-T13
Surface-mounted type	Plastic Magazine (Tube)	75	Type name	FX20ASJ-03F

Note : Please confirm the specification about the shipping in detail.

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