


FY12AAJ-03F

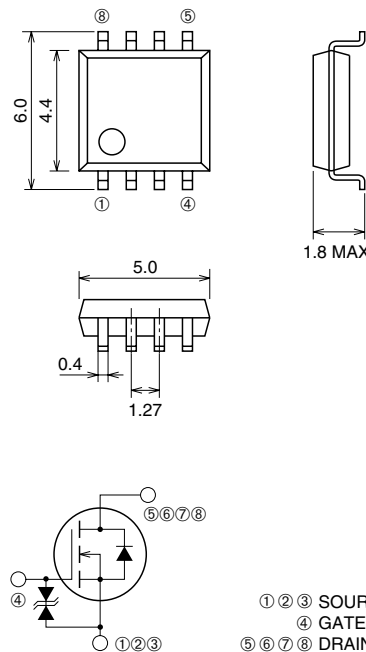
HIGH-SPEED SWITCHING USE

FY12AAJ-03F



- 4V DRIVE
- V_{DSS} 30V
- $r_{DS(ON)}(MAX)$ 11.5m Ω
- I_D 12A

OUTLINE DRAWING Dimensions in mm



① ② ③ SOURCE
④ GATE
⑤ ⑥ ⑦ ⑧ DRAIN

SOP-8

APPLICATION

Motor control, Lamp control, Solenoid control
DC-DC converter, etc.

MAXIMUM RATINGS ($T_c = 25^\circ C$)

Symbol	Parameter	Conditions	Ratings	Unit
V_{DSS}	Drain-source voltage	$V_{GS} = 0V$	30	V
V_{GSS}	Gate-source voltage	$V_{DS} = 0V$	± 20	V
I_D	Drain current		12	A
I_{DM}	Drain current (Pulsed)		84	A
I_{DA}	Avalanche drain current (Pulsed)	$L = 10\mu H$	12	A
I_S	Source current		1.8	A
I_{SM}	Source current (Pulsed)		7.2	A
P_D	Maximum power dissipation		2.0	W
T_{ch}	Channel temperature		-55~+150	$^\circ C$
T_{stg}	Storage temperature		-55~+150	$^\circ C$
—	Weight	Typical value	0.07	g

ELECTRICAL CHARACTERISTICS (T_{ch} = 25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
V (BR)DSS	Drain-source breakdown voltage	I _D = 1mA, V _{GS} = 0V	30	—	—	V
V (BR)GSS	Gate-source breakdown voltage	I _G = ±100μA, V _{GS} = 0V	±20	—	—	V
I _{DSS}	Drain-source leakage current	V _{DS} = 30V, V _{GS} = 0V	—	—	0.1	mA
I _{GSS}	Gate-source leakage current	V _{GS} = ±20V, V _{DS} = 0V	—	—	±10	μA
V _{GS} (th)	Gate-source threshold voltage	I _D = 1mA, V _{DS} = 10V	1.0	1.5	2.0	V
r _{DS} (ON)	Drain-source on-state resistance	I _D = 12A, V _{GS} = 10V	—	9.0	11.5	mΩ
r _{DS} (ON)	Drain-source on-state resistance	I _D = 6A, V _{GS} = 4.5V	—	12.5	17.5	mΩ
r _{DS} (ON)	Drain-source on-state resistance	I _D = 6A, V _{GS} = 4V	—	14.5	20.0	mΩ
V _{DS} (ON)	Drain-source on-state voltage	I _D = 12A, V _{GS} = 10V	—	0.108	0.138	V
y _{fs}	Forward transfer admittance	I _D = 12A, V _{DS} = 10V	—	25	—	S
C _{iss}	Input capacitance	V _{DS} = 10V, V _{GS} = 0V, f = 1MHz	—	1800	—	pF
C _{oss}	Output capacitance		—	500	—	pF
C _{rss}	Reverse transfer capacitance		—	230	—	pF
t _d (on)	Turn-on delay time	V _{DD} = 15V, I _D = 6A, V _{GS} = 10V, R _G = 5Ω	—	18	—	ns
t _r	Rise time		—	20	—	ns
t _d (off)	Turn-off delay time		—	50	—	ns
t _f	Fall time		—	17	—	ns
Q _g	Total gate charge	V _{DD} = 15V, V _{GS} = 10V, I _D = 12A	—	35	—	nC
Q _{gs}	Gate-source charge		—	4	—	nC
Q _{gd}	Gate-drain charge		—	10	—	nC
V _{SD}	Source-drain voltage	I _S = 1.8A, V _{GS} = 0V	—	0.75	1.10	V
R _{th} (ch-a)	Thermal resistance	Channel to air	—	—	62.5	°C/W
t _{rr}	Reverse recovery time	I _S = 1.8A, di _s /dt = -50A/μs	—	45	—	ns