

PRELIMINARY
 Notice: This is not a final specification.
 Some parametric limits are subject to change.

MITSUBISHI POWER MOSFET

FY7BCH-02B

HIGH-SPEED SWITCHING USE
 Nch POWER MOSFET

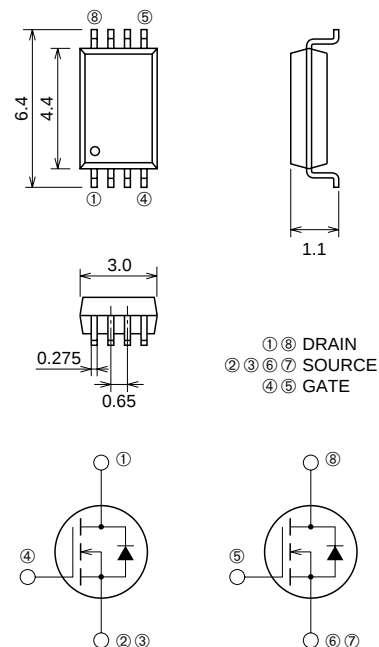
FY7BCH-02B



- 2.5V DRIVE
- V_{DS} 20V
- $r_{DS(ON)}$ (MAX) 21m Ω
- I_D 7A

OUTLINE DRAWING

Dimensions in mm



TSSOP8

APPLICATION

Motor control, Lamp control, Solenoid control,
 DC-DC converte, etc

MAXIMUM RATINGS (Tc = 25°C)

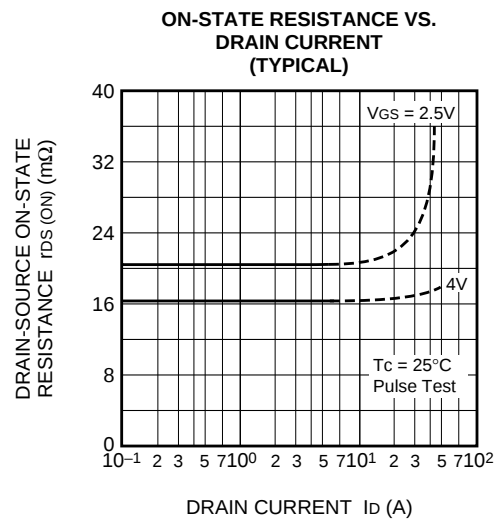
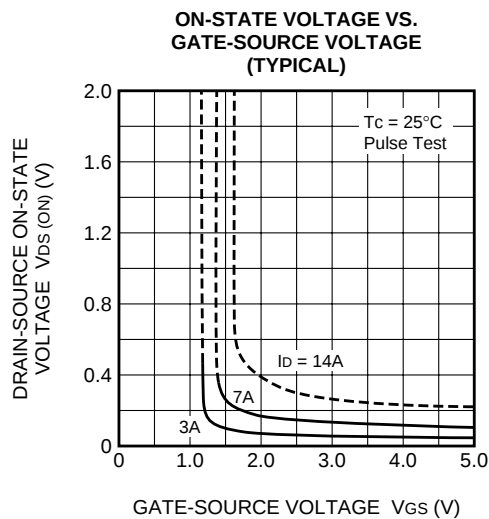
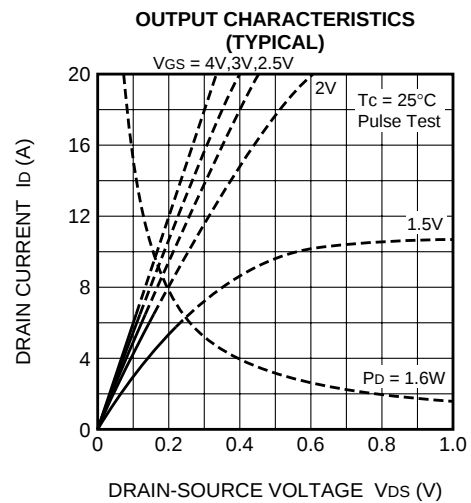
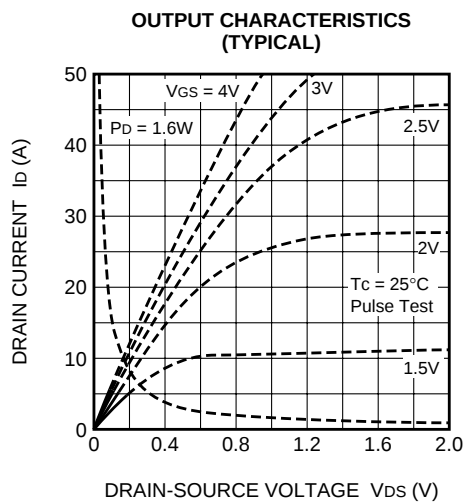
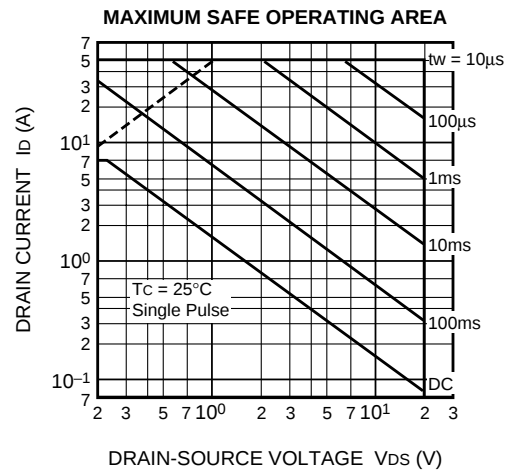
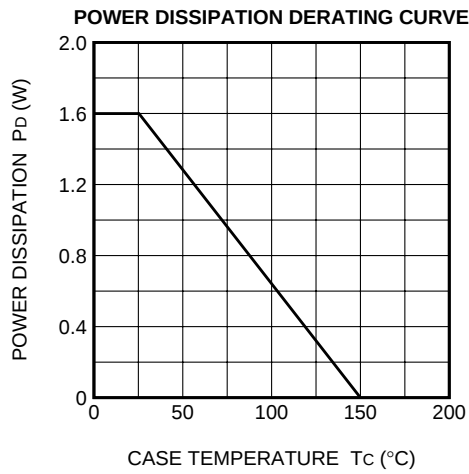
Symbol	Parameter	Conditions	Ratings	Unit
V_{DS}	Drain-source voltage	$V_{GS} = 0V$	20	V
V_{GS}	Gate-source voltage	$V_{DS} = 0V$	± 10	V
I_D	Drain current		7	A
I_{DM}	Drain current (Pulsed)		49	A
I_{DA}	Avalanche current (Pulsed)	$L = 10\mu H$	7	A
I_S	Source current		1.5	A
I_{SM}	Source current (Pulsed)		6.0	A
P_D	Maximum power dissipation		1.6	W
T_{ch}	Channel temperature		-55~+150	°C
T_{stg}	Storage temperature		-55~+150	°C
—	Weight	Typical value	0.035	g

Aug. 1999

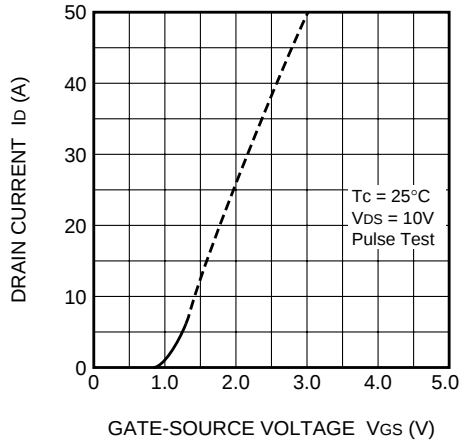
ELECTRICAL CHARACTERISTICS (Tch = 25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
V (BR) DSS	Drain-source breakdown voltage	Id = 1mA, Vgs = 0V	20	—	—	V
IGSS	Gate-source leakage current	Vgs = ±10V, Vds = 0V	—	—	±0.1	μA
IDSS	Drain-source leakage current	Vds = 20V, Vgs = 0V	—	—	0.1	mA
VGS (th)	Gate-source threshold voltage	Id = 1mA, Vds = 10V	0.5	0.8	1.3	V
rDS (ON)	Drain-source on-state voltage	Id = 7A, Vgs = 4V	—	17	21	mΩ
rDS (ON)	Drain-source on-state resistance	Id = 3.5A, Vgs = 2.5V	—	21	30	mΩ
VDS (ON)	Drain-source on-state voltage	Id = 7A, Vgs = 4V	—	0.119	0.147	V
yfs	Forward transfer admittance	Id = 7A, Vds = 10V	—	20	—	S
Ciss	Input capacitance	Vds = 10V, Vgs = 0V, f = 1MHz	—	1350	—	pF
Coss	Output capacitance		—	400	—	pF
Crss	Reverse transfer capacitance		—	300	—	pF
td (on)	Turn-on delay time	VDD = 10V, Id = 3.5A, Vgs = 4V, RGEN = RGS = 50Ω	—	30	—	ns
tr	Rise time		—	80	—	ns
td (off)	Turn-off delay time		—	150	—	ns
tf	Fall time		—	160	—	ns
VSD	Source-drain voltage	Is = 1.5A, Vgs = 0V	—	0.75	1.10	V
Rth (ch-a)	Thermal resistance	Channel to ambiet	—	—	78.1	°C/W
trr	Reverse recovery time	Is = 1.5A, dis/dt = -50A/μs	—	50	—	ns

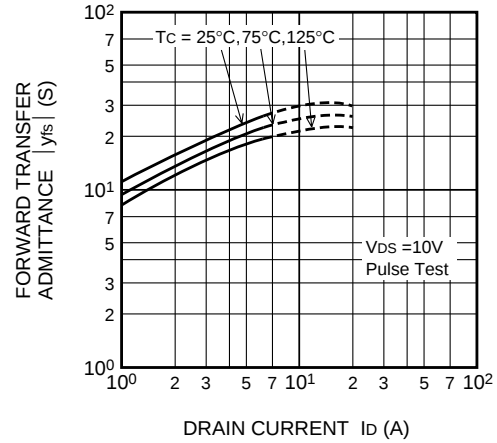
PERFORMANCE CURVES



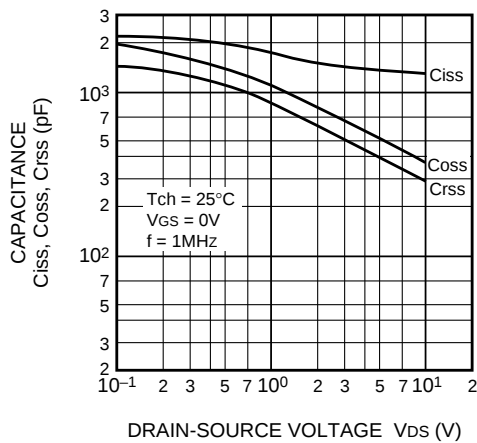
TRANSFER CHARACTERISTICS
(TYPICAL)



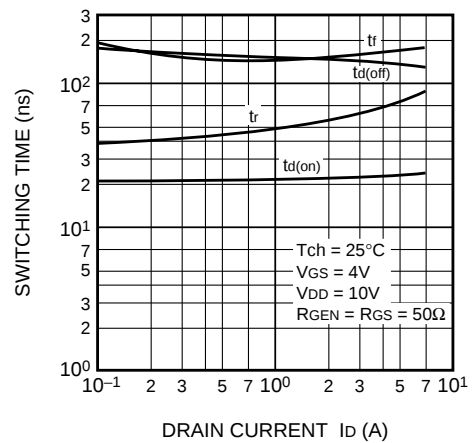
FORWARD TRANSFER ADMITTANCE
VS.DRAIN CURRENT
(TYPICAL)



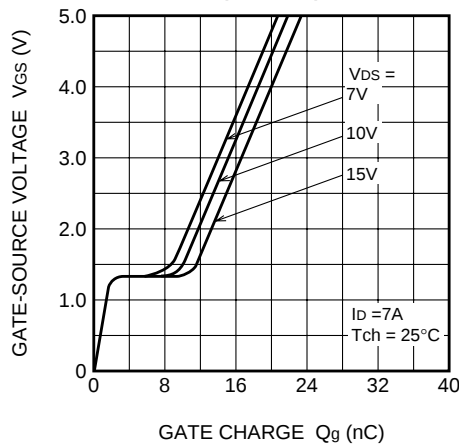
CAPACITANCE VS.
DRAIN-SOURCE VOLTAGE
(TYPICAL)



SWITCHING CHARACTERISTICS
(TYPICAL)



GATE-SOURCE VOLTAGE
VS.GATE CHARGE
(TYPICAL)



SOURCE-DRAIN DIODE
FORWARD CHARACTERISTICS
(TYPICAL)

