


FY7BFH-02E

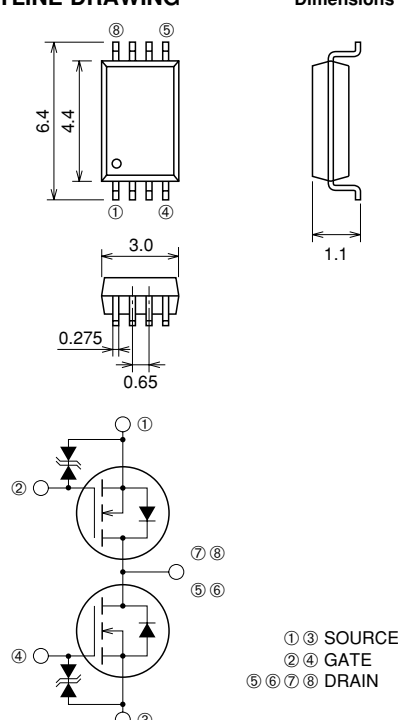
HIGH-SPEED SWITCHING USE

FY7BFH-02E



- 2.5V DRIVE
- V_{DSS} 20V
- $r_{DS(ON)}$ (MAX) 30m Ω
- I_D 7A

OUTLINE DRAWING Dimensions in mm



① ③ SOURCE
② ④ GATE
⑤ ⑥ ⑦ ⑧ DRAIN

TSSOP8

APPLICATION

Li - ion battery, etc.

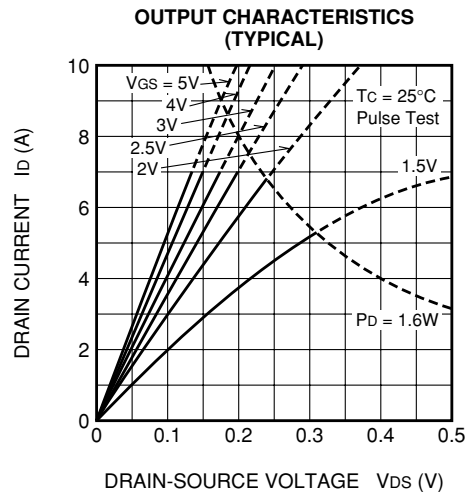
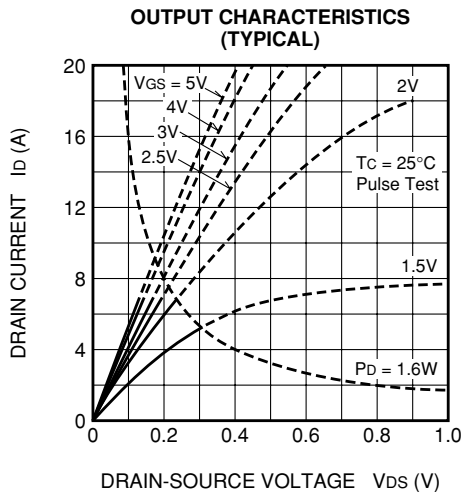
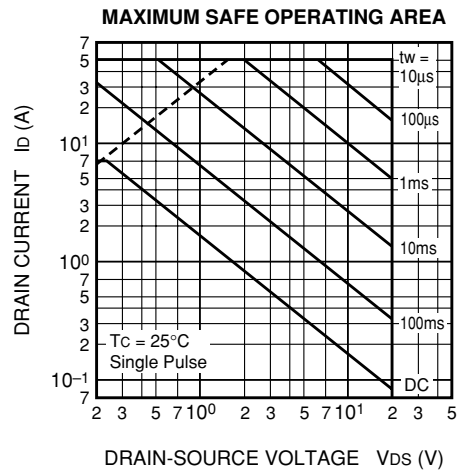
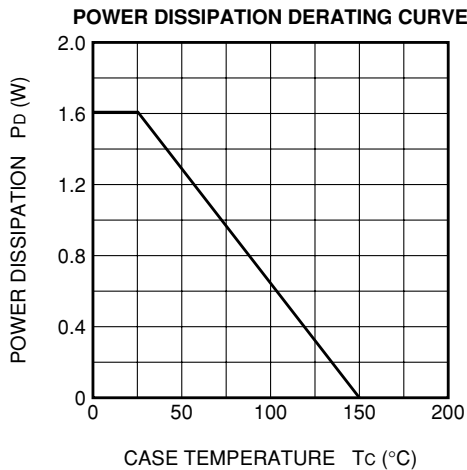
MAXIMUM RATINGS (Tc = 25°C)

Symbol	Parameter	Conditions	Ratings	Unit
V_{DSS}	Drain-source voltage	$V_{GS} = 0V$	20	V
V_{GSS}	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		1.8	A
I_{SM}	Source current (Pulsed)		7.2	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

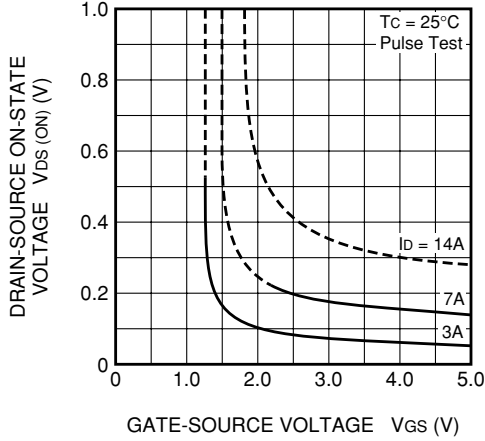
ELECTRICAL CHARACTERISTICS (T_{ch} = 25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
V _{(BR)DSS}	Drain-source breakdown voltage	I _D = 1mA, V _{GS} = 0V	20	—	—	V
V _{(BR)GSS}	Gate-source breakdown voltage	I _G = ±100μA, V _{DS} = 0V	±10	—	—	V
I _{GSS}	Gate-source leakage current	V _{GS} = ±10V, V _{DS} = 0V	—	—	±10	μA
I _{DSS}	Drain-source leakage current	V _{DS} = 20V, V _{GS} = 0V	—	—	0.1	mA
V _{GS(th)}	Gate-source threshold voltage	I _D = 1mA, V _{DS} = 10V	0.5	0.9	1.3	V
r _{DS(ON)}	Drain-source on-state resistance	I _D = 7A, V _{GS} = 4V	—	23	30	mΩ
r _{DS(ON)}	Drain-source on-state resistance	I _D = 3.5A, V _{GS} = 2.5V	—	30	40	mΩ
V _{DS(ON)}	Drain-source on-state voltage	I _D = 7A, V _{GS} = 4V	—	0.161	0.210	V
y _{fs}	Forward transfer admittance	I _D = 7A, V _{DS} = 10V	—	16	—	S
C _{iss}	Input capacitance	V _{DS} = 10V, V _{GS} = 0V, f = 1MHz	—	1400	—	pF
C _{oss}	Output capacitance		—	520	—	pF
C _{rss}	Reverse transfer capacitance		—	400	—	pF
t _{d(on)}	Turn-on delay time	V _{DD} = 10V, I _D = 3.5A, V _{GS} = 4V, R _{GEN} = R _{GS} = 50Ω	—	30	—	ns
t _r	Rise time		—	100	—	ns
t _{d(off)}	Turn-off delay time		—	190	—	ns
t _f	Fall time		—	190	—	ns
V _{SD}	Source-drain voltage	I _S = 1.8A, V _{GS} = 0V	—	0.85	1.1	V
R _{th(ch-a)}	Thermal resistance	Channel to ambient	—	—	78.1	°C/W
t _{rr}	Reverse recovery time	I _S = 1.8A, dis/dt = -50A/μs	—	50	—	ns

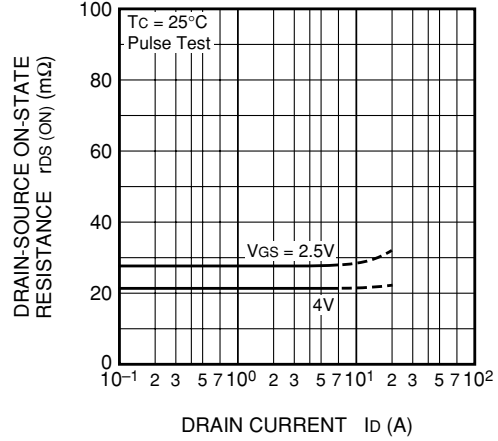
PERFORMANCE CURVES



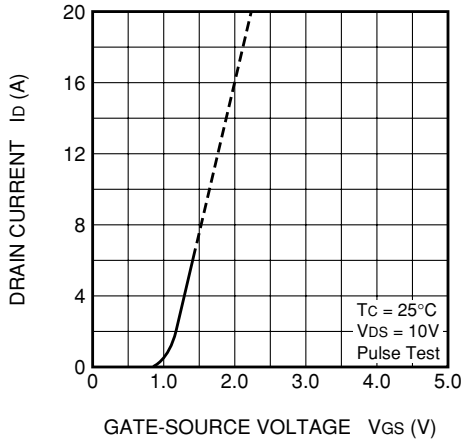
ON-STATE VOLTAGE VS. GATE-SOURCE VOLTAGE (TYPICAL)



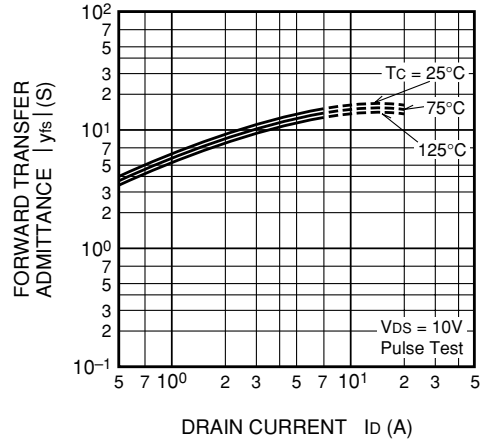
ON-STATE RESISTANCE VS. DRAIN CURRENT (TYPICAL)



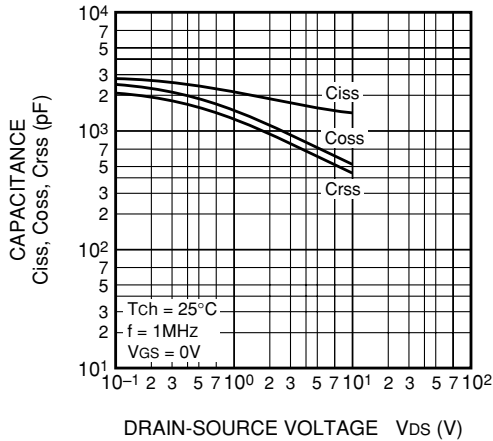
TRANSFER CHARACTERISTICS (TYPICAL)



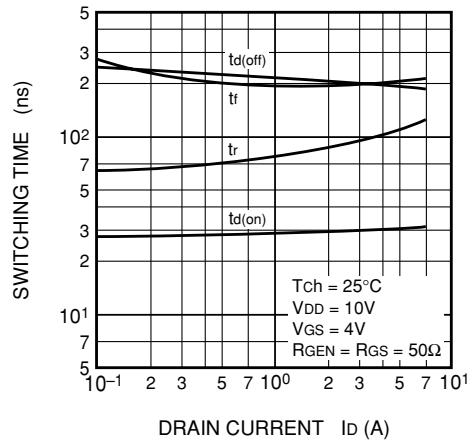
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT (TYPICAL)



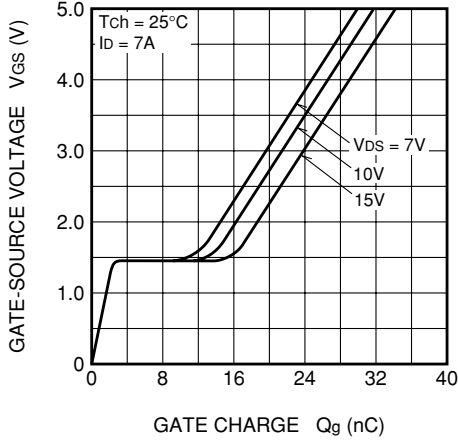
CAPACITANCE VS. DRAIN-SOURCE VOLTAGE (TYPICAL)



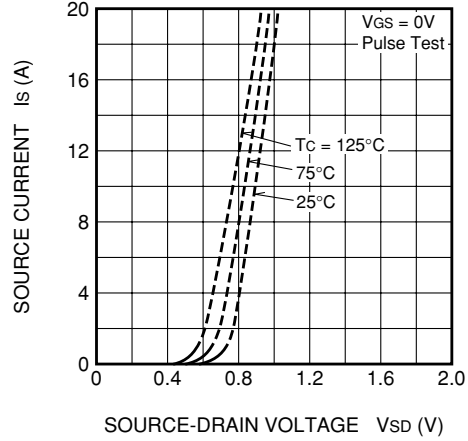
SWITCHING CHARACTERISTICS (TYPICAL)



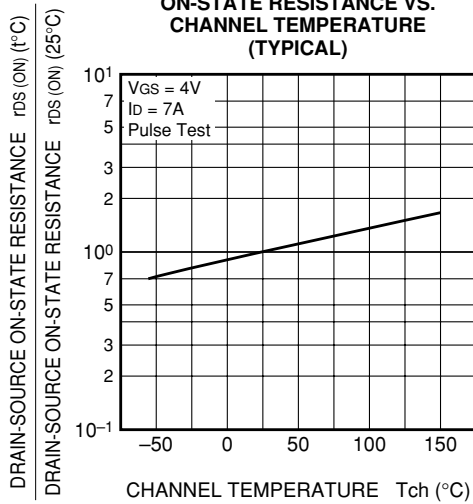
GATE-SOURCE VOLTAGE VS. GATE CHARGE (TYPICAL)



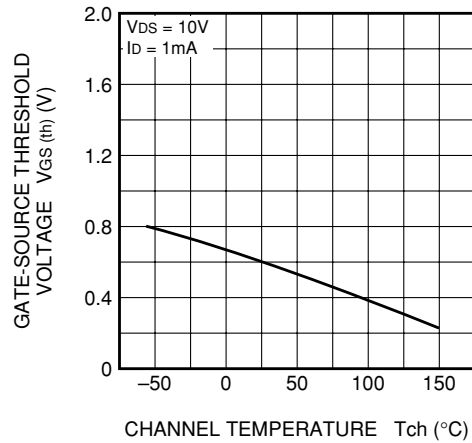
SOURCE-DRAIN DIODE FORWARD CHARACTERISTICS (TYPICAL)



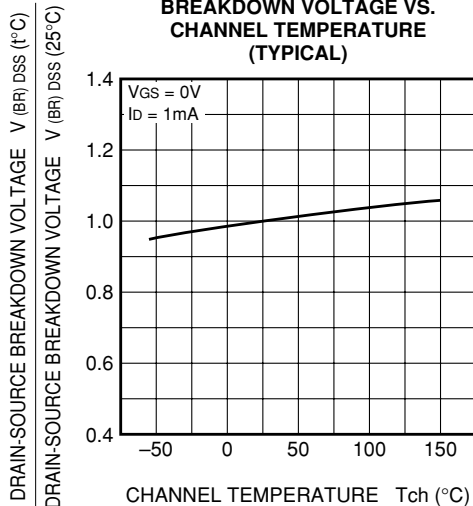
ON-STATE RESISTANCE VS. CHANNEL TEMPERATURE (TYPICAL)



THRESHOLD VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)



BREAKDOWN VOLTAGE VS. CHANNEL TEMPERATURE (TYPICAL)



TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS

