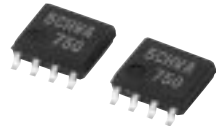


FY5ACH-03A

HIGH-SPEED SWITCHING USE

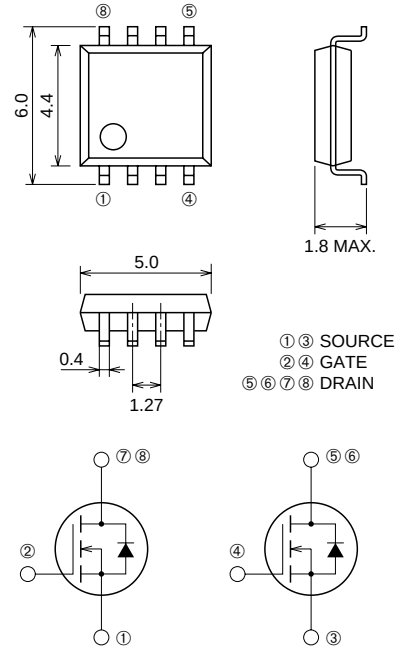
FY5ACH-03A



- 2.5V DRIVE
- V_{DS} 30V
- $r_{DS(ON)}$ (MAX) 50m Ω
- I_D 5A

OUTLINE DRAWING

Dimensions in mm



APPLICATION

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

MAXIMUM RATINGS (T_c = 25°C)

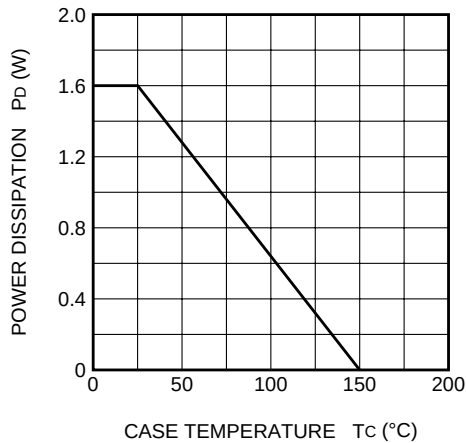
Symbol	Parameter	Conditions	Ratings	Unit
V_{DS}	Drain-source voltage	$V_{GS} = 0V$	30	V
V_{GS}	Gate-source voltage	$V_{DS} = 0V$	± 10	V
I_D	Drain current		5	A
I_{DM}	Drain current (Pulsed)		35	A
I_{DA}	Avalanche drain current (Pulsed)	$L = 10\mu H$	5	A
I_S	Source current		1.7	A
I_{SM}	Source current (Pulsed)		6.8	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	0.07	g

ELECTRICAL CHARACTERISTICS (Tch = 25°C)

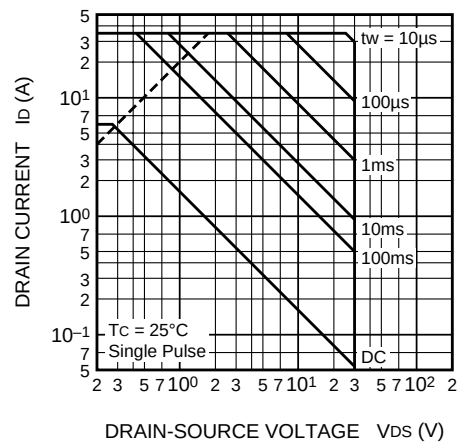
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
V(BR)DSS	Drain-source breakdown voltage	Id = 1mA, Vds = 0V	30	—	—	V
IGSS	Gate-source leakage current	VGS = ±10V, Vds = 0V	—	—	±0.1	μA
IDSS	Drain-source leakage current	Vds = 30V, VGS = 0V	—	—	0.1	mA
VGS(th)	Gate-source threshold voltage	Id = 1mA, Vds = 10V	0.5	0.9	1.3	V
rDS(ON)	Drain-source on-state resistance	Id = 5A, VGS = 4V	—	40	50	mΩ
rDS(ON)	Drain-source on-state resistance	Id = 2.5A, VGS = 2.5V	—	52	80	mΩ
VDS(ON)	Drain-source on-state voltage	Id = 5A, VGS = 4V	—	0.20	0.25	V
yfs	Forward transfer admittance	Id = 5A, Vds = 10V	—	11	—	S
Ciss	Input capacitance	Vds = 10V, VGS = 0V, f = 1MHz	—	750	—	pF
Coss	Output capacitance		—	180	—	pF
Crss	Reverse transfer capacitance		—	80	—	pF
td(on)	Turn-on delay time	VDD = 15V, Id = 2.5A, VGS = 4V, RGEN = RGS = 50Ω	—	18	—	ns
tr	Rise time		—	45	—	ns
td(off)	Turn-off delay time		—	52	—	ns
tf	Fall time		—	44	—	ns
VSD	Source-drain voltage	Is = 1.7A, VGS = 0V	—	0.75	1.1	V
Rth(ch-a)	Thermal resistance	Channel to ambient	—	—	78.1	°C/W
trr	Reverse recovery time	Is = 1.7A, dis/dt = -50A/μs	—	100	—	ns

PERFORMANCE CURVES

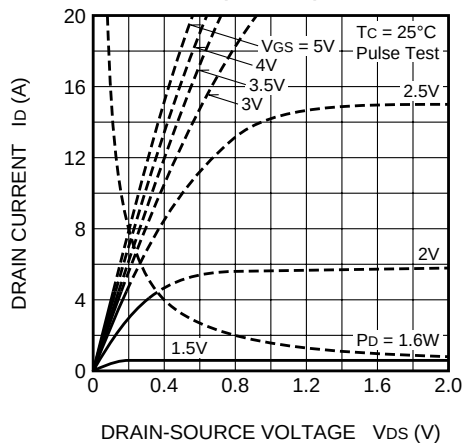
POWER DISSIPATION DERATING CURVE



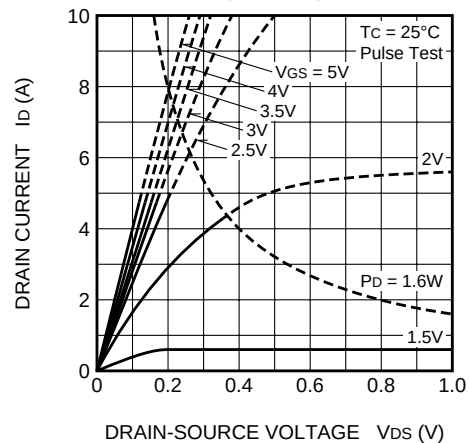
MAXIMUM SAFE OPERATING AREA



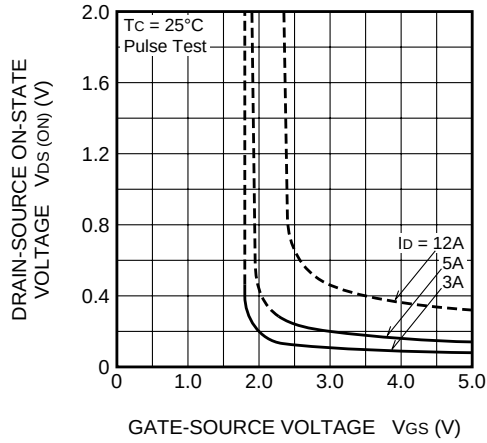
OUTPUT CHARACTERISTICS (TYPICAL)



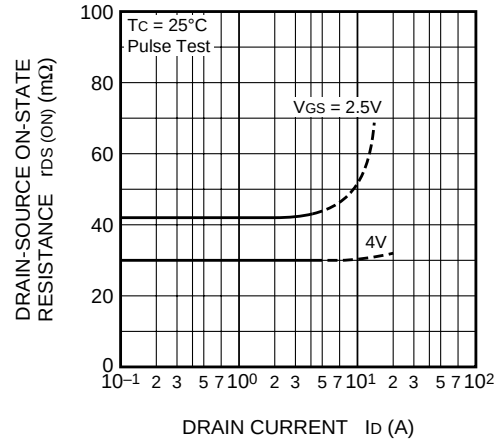
OUTPUT CHARACTERISTICS (TYPICAL)



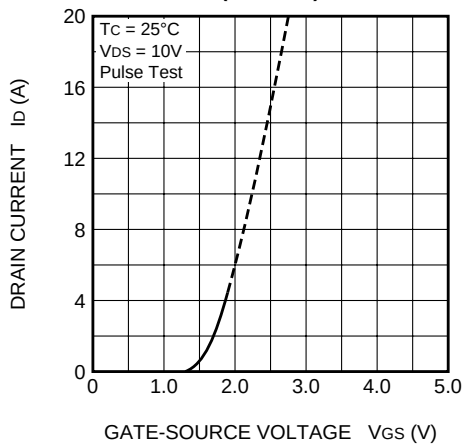
ON-STATE VOLTAGE VS.
GATE-SOURCE VOLTAGE
(TYPICAL)



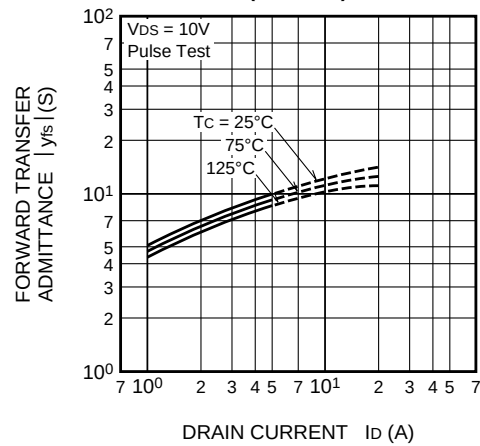
ON-STATE RESISTANCE VS.
DRAIN CURRENT
(TYPICAL)



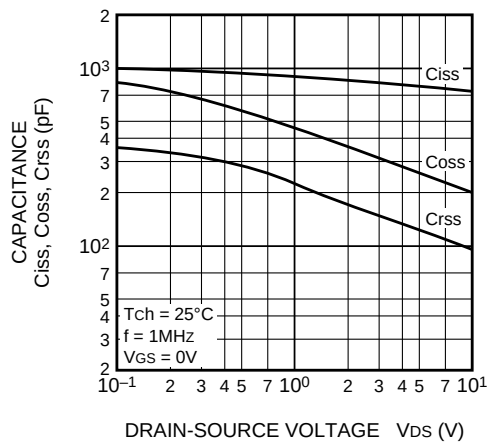
TRANSFER CHARACTERISTICS
(TYPICAL)



FORWARD TRANSFER ADMITTANCE
VS. DRAIN CURRENT
(TYPICAL)



CAPACITANCE VS.
DRAIN-SOURCE VOLTAGE
(TYPICAL)



SWITCHING CHARACTERISTICS
(TYPICAL)

