

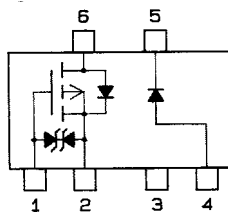
**FX851**
MOSFET:P-Channel Silicon MOSFET
SBD:Schottky Barrier Diode

DC-DC Converter Applications

Features

- Composite type composed of a low ON-resistance P-channel MOSFET for ultrahigh-speed switching and low-voltage driving and a fast-recovery, low forward-voltage Schottky barrier diode. Facilitates high-density mounting.
- The FX851 is formed with 2 chips, one being equivalent to the 2SJ187 and the other the SB07-03P, placed in one package.

Electrical Connection



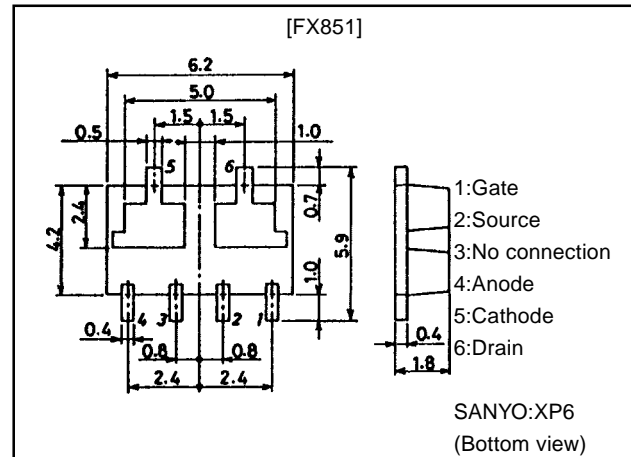
- 1:Gate
2:Source
3:No connection
4:Anode
5:Cathode
6:Drain

(Top view)

Package Dimensions

unit:mm

2119



Specifications

Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
[MOSFET]				
Drain-to-Source Voltage	V_{DSS}		-30	V
Gate-to-Source Voltage	V_{GSS}		± 15	V
Drain Current (DC)	I_D		-1	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	-4	A
Allowable Power Dissipation	P_D	$T_c = 25^\circ\text{C}$	6	W
		Mounted on ceramic board (750mm ² × 0.8mm)	1.5	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$
[SBD]				
Repetitive Peak Reverse Voltage	V_{RRM}		30	V
Non-repetitive Peak Reverse Surge Voltage	V_{RSM}		35	V
Average Rectified Current	I_O		700	mA
Surge Forward Current	I_{FSM}	50Hz sine wave, 1 cycle	5	A
Junction Temperature	T_j		-55 to +125	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

· Marking:851

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FX851

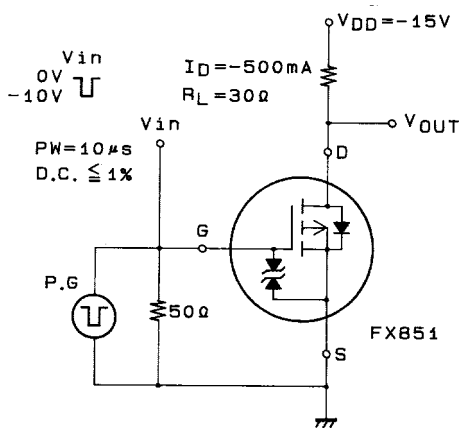
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Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
D-S Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1\text{mA}, V_{GS} = 0$	-30			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -30\text{V}, V_{GS} = 0$			-100	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 12\text{V}, V_{DS} = 0$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -10\text{V}, I_D = -1\text{mA}$	-1.0		-2.0	V
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS} = -10\text{V}, I_D = -500\text{mA}$	0.6	1.0		S
Static Drain-to-Source ON-State Resistance	$R_{DS(on)}$	$I_D = -500\text{mA}, V_{GS} = -10\text{V}$		0.5	0.75	Ω
	$R_{DS(on)}$	$I_D = -500\text{mA}, V_{GS} = -4\text{V}$		0.75	1.1	Ω
Input Capacitance	C_{iss}	$V_{DS} = -10\text{V}, f = 1\text{MHz}$		170		pF
Output Capacitance	C_{oss}	$V_{DS} = -10\text{V}, f = 1\text{MHz}$		110		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = -10\text{V}, f = 1\text{MHz}$		20		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		10		ns
Rise Time	t_r	See specified Test Circuit		13		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		70		ns
Fall Time	t_f	See specified Test Circuit		30		ns
Diode Forward Voltage	V_{SD}	$I_S = -1\text{A}, V_{GS} = 0$		-0.9		V
[SBD]						
Reverse Voltage	V_R	$I_R = 300\mu\text{A}$	30			V
Forward Voltage	V_F	$I_F = 700\text{mA}$			0.55	V
Reverse Current	I_R	$V_R = 15\text{V}$			80	μA
Interterminal Capacitance	C	$V_R = 10\text{V}, f = 1\text{MHz Cycle}$		26		pF
Reverse Recovery Time	t_{rr}	$I_F = I_R = 100\text{mA}$, See specified Test Circuit			10	ns
Thermal Resistance	R_{th-a}	Mounted on ceramic board (750mm ² ×0.8mm)		100		°C/W

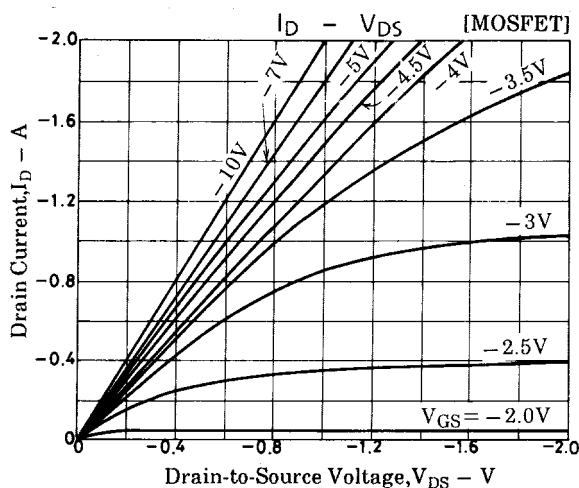
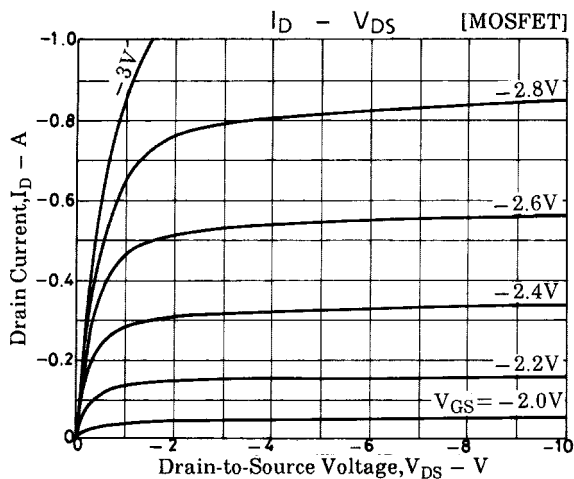
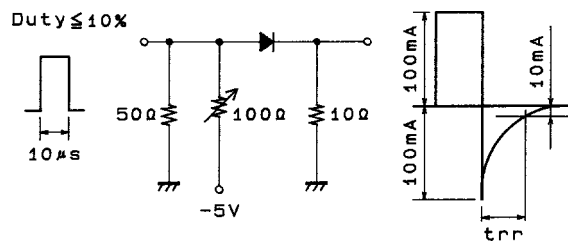
Switching Time Test Circuit

[MOSFET]

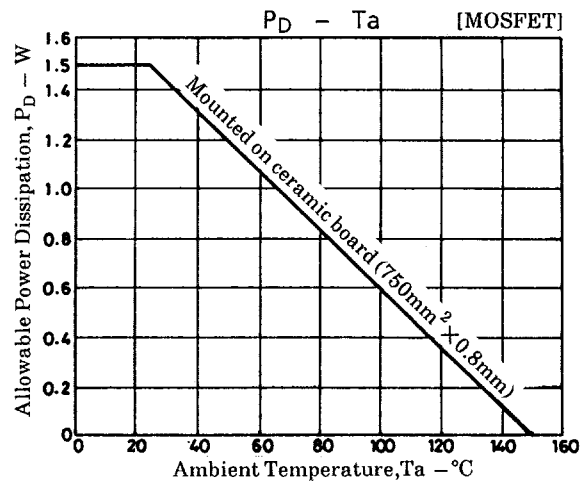
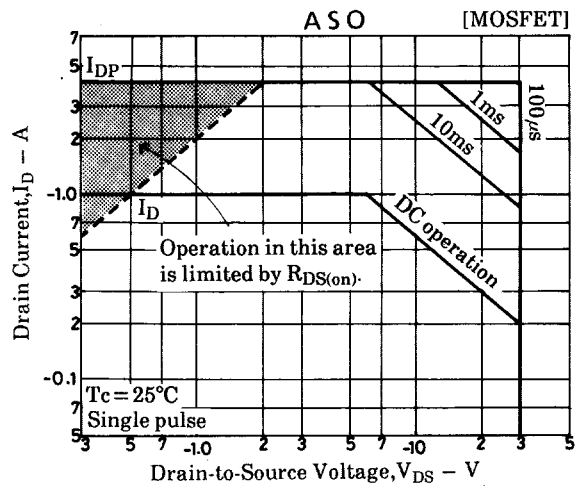
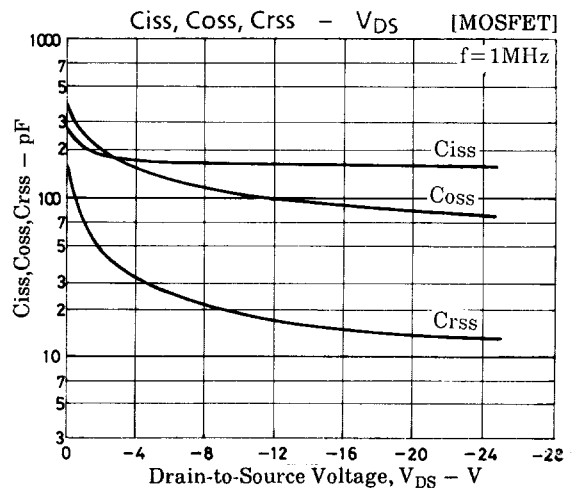
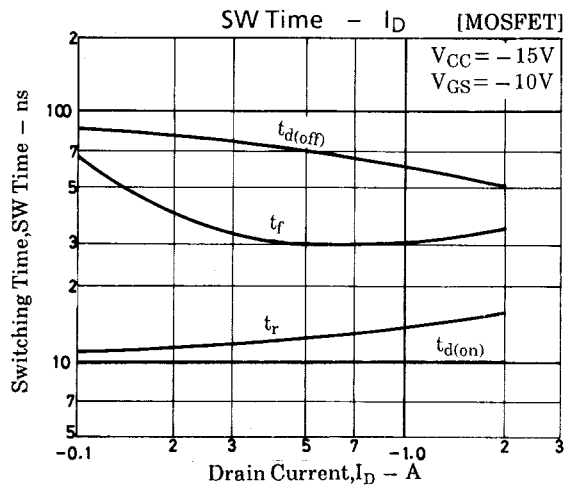
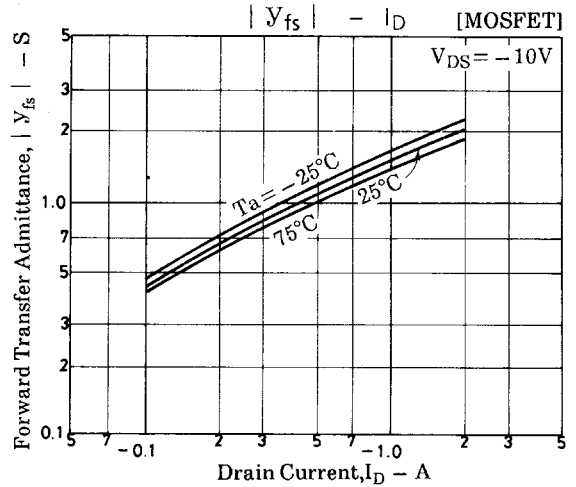
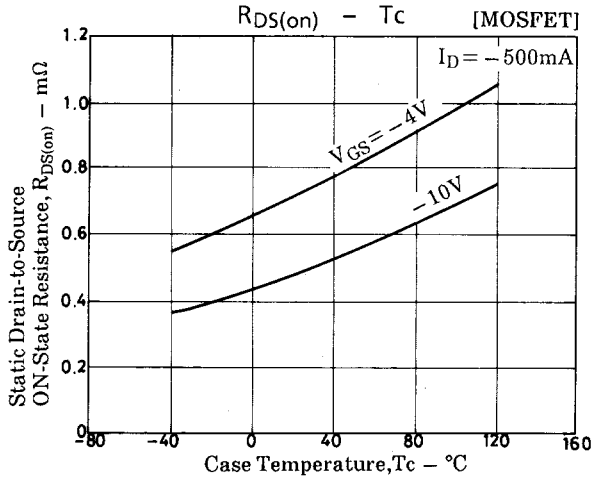
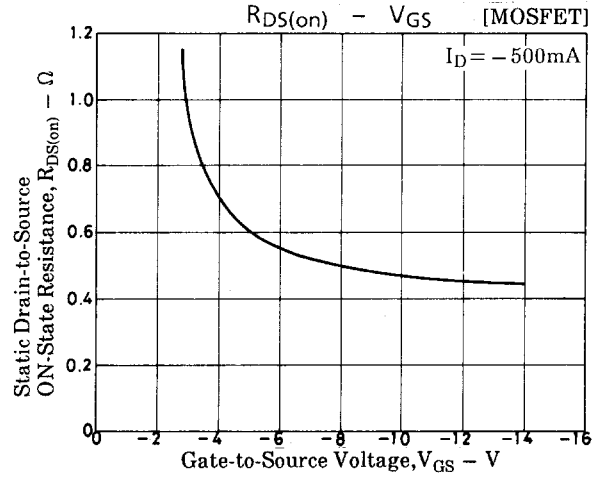
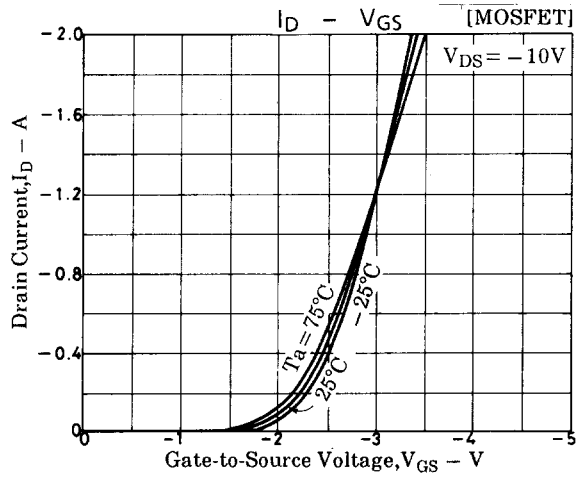


Trr Test Circuit

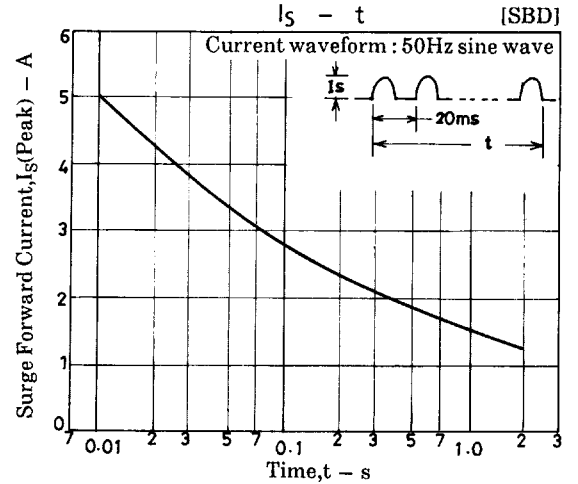
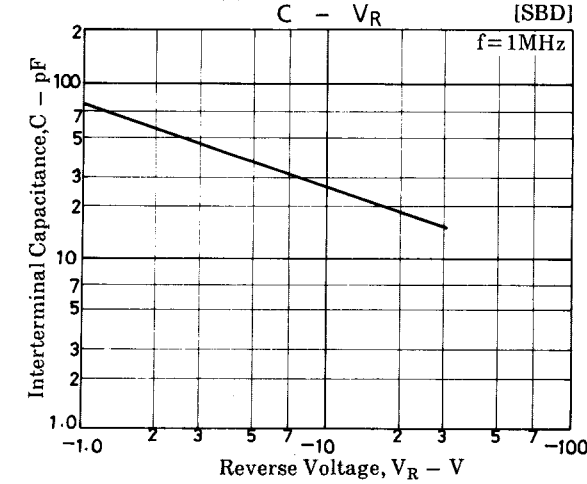
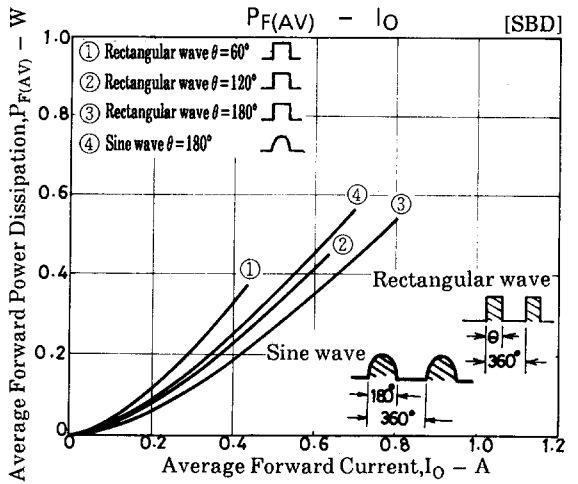
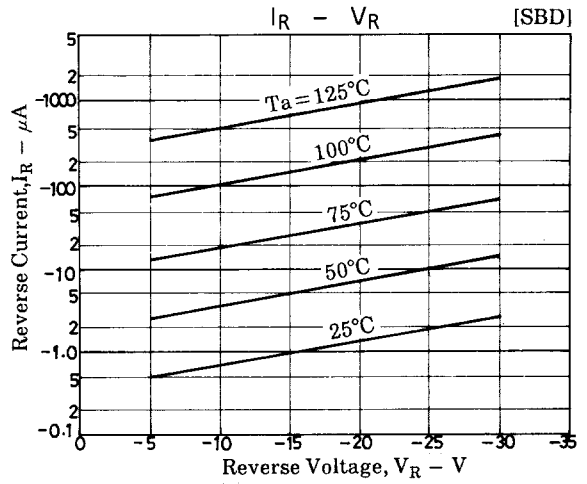
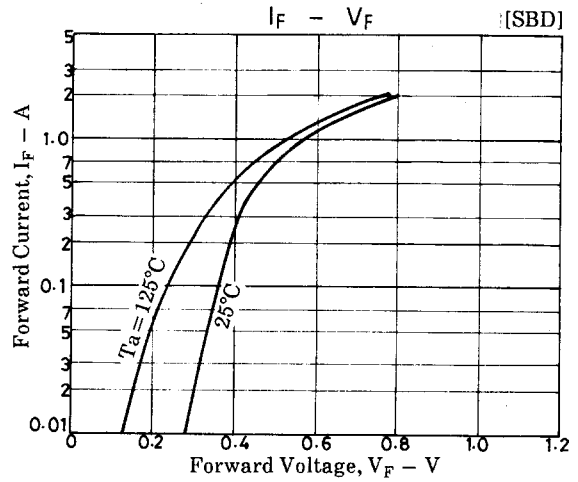
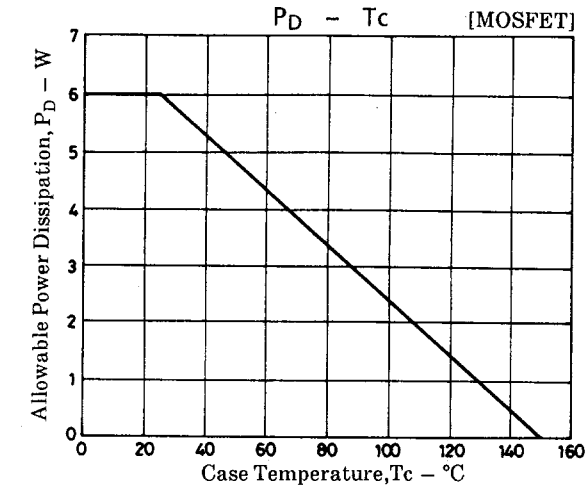
[SBD]



FX851



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