Ordering number:ENN5372A

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

FX856

DC/DC Converter Applications

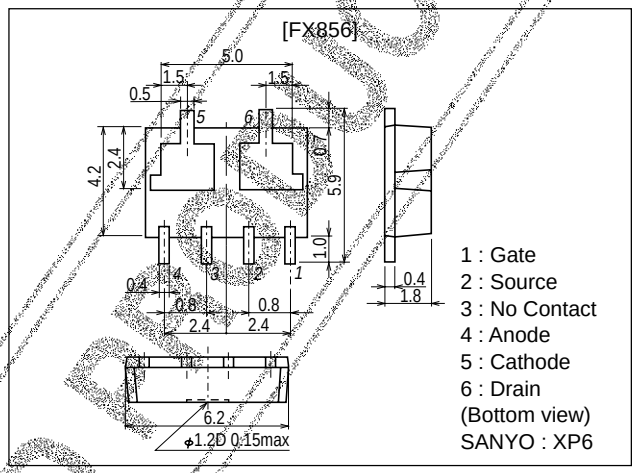
Features

- The FX856 composite device consists of following two devices to facilitate high-density mounting. One is a P-channel MOSFET that features low ON resistance, high-speed switching, and low driving voltage. The other is a shottky barrier diode that features short reverse recovery time and low forward voltage.
- Each device incorporated in the FX856 is equivalent to the 2SJ416 and to the SB07-03P, respectively.

Package Dimensions

unit:mm

2119



Specifications

Absolute Maximum Ratings at Ta = 25˚C

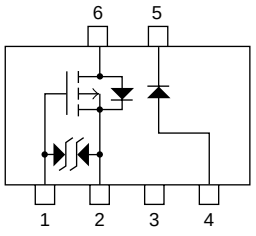
Parameter	Symbol	Conditions	Ratings	Unit
[MOSFET]				
Drain-to-Source Voltage	V_{DSS}		–30	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		–2	A
Drain Current (Pulse)	I_{DP}	PW ≤10μs, duty cycle ≤1%	–8	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (750mm²×0.8mm)	1.5	W
		Tc=25°C	6	W
Channel Temperature	Tch		150	˚C
Storage Temperature	Tstg		–55 to +150	˚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, 1cycle	5	A
Junction Temperature	Tj		–55 to +125	˚C
Storage Temperature	Tstg		–55 to +125	˚C

Marking : 863

Electrical Characteristics at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=–1mA, V_{GS}=0	–30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=–30V, V_{GS}=0			–100	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=–10V, I_D=–1mA	–1.0		–2.5	V
Forward Transfer Admittance	| yfs |	V_{DS}=–10V, I_D=–1A	1.2	2.0		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=–1A, V_{GS}=–10V		310	440	mΩ
	R_{DS}(on)2	I_D=–1A, V_{GS}=–4V		480	650	mΩ
Input Capacitance	Ciss	V_{DS}=–10V, f=1MHz		170		pF
Output Capacitance	Coss	V_{DS}=–10V, f=1MHz		120		pF
Reverse Transfer Capacitance	Crss	V_{DS}=–10V, f=1MHz		30		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit		10		ns
Rise Time	t_r	See specified Test Circuit		20		ns
Turn-OFF Delay Time	t_d(off)	See specified Test Circuit		110		ns
Fall Time	t_f	See specified Test Circuit		75		ns
Diode Forward Voltage	V_{SD}	I_S=–2A, V_{GS}=0		–1.0	–1.2	V
[SBD]						
Reverse Voltage	V_R	I_R=300μA	30			V
Forward Voltage	V_F	I_F=700mA			0.55	V
Reverse Current	I_R	V_R=15V			80	μA
Interterminal Capacitance	C	V_R=10V, f=1MHz cycle		26		pF
Reverse Recovery Time	t_{rr}	I_F=I_R=100mA, See specified Test Circuit			10	ns
Thermal Resistance	Rthj-a	Mounted on a ceramic board (750mm²×0.8mm)		100		˚C/W

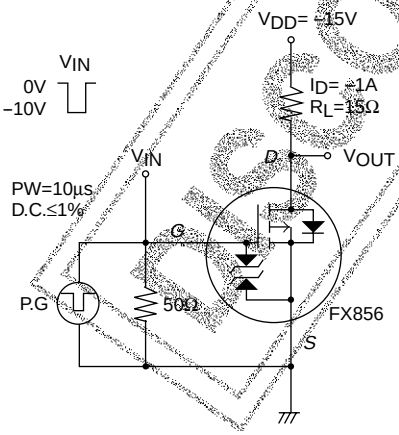
Electrical Connection



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

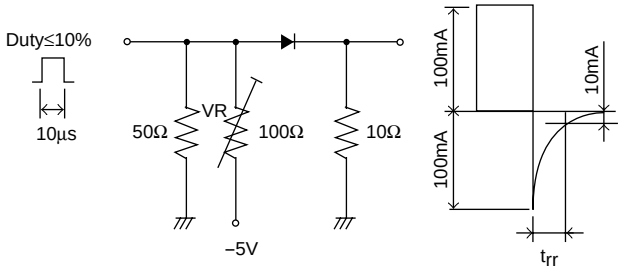
Switching Time Test Circuit

[MOSFET]

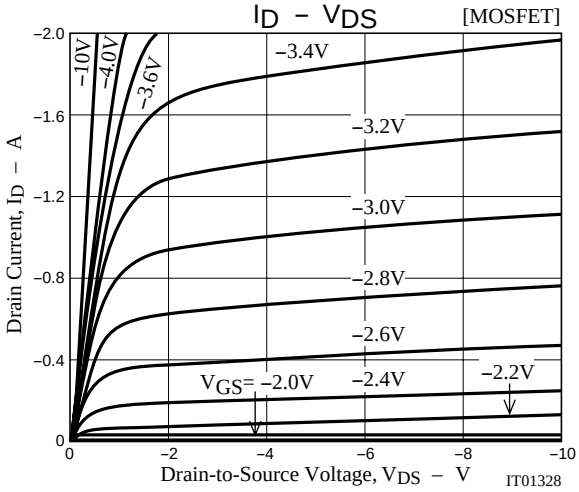


Trr Test Circuit

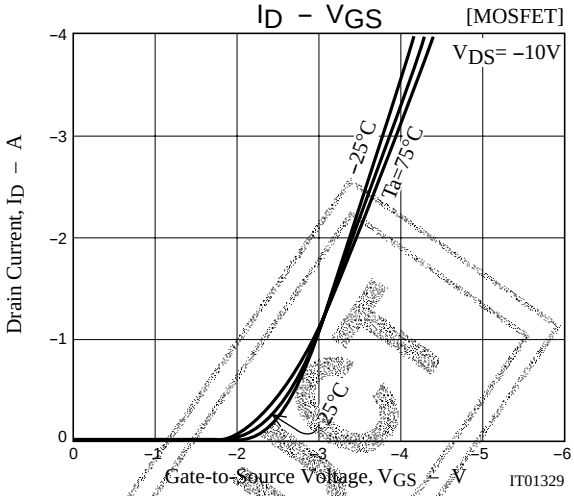
[SBD]



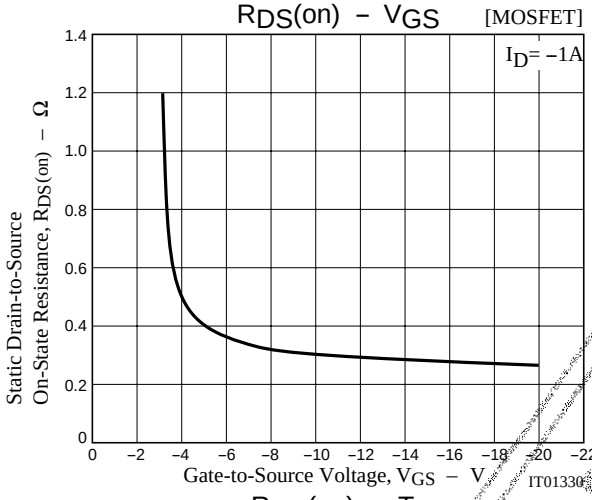
I_D – V_{DS} [MOSFET]



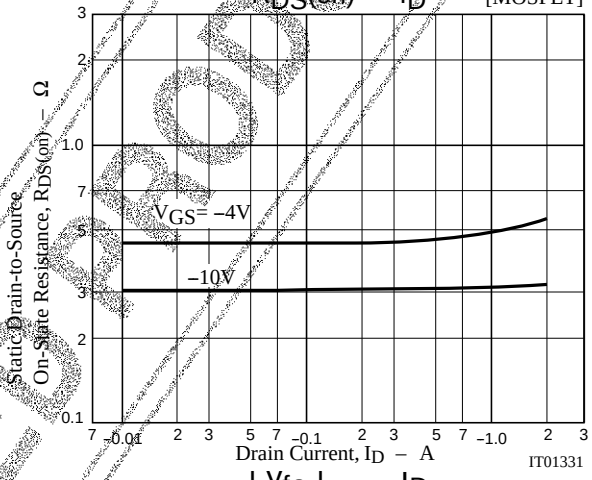
I_D – V_{GS} [MOSFET]



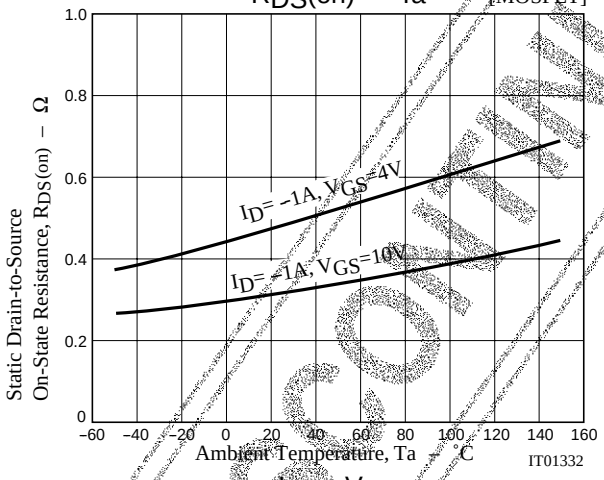
$R_{DS(on)}$ – V_{GS} [MOSFET]



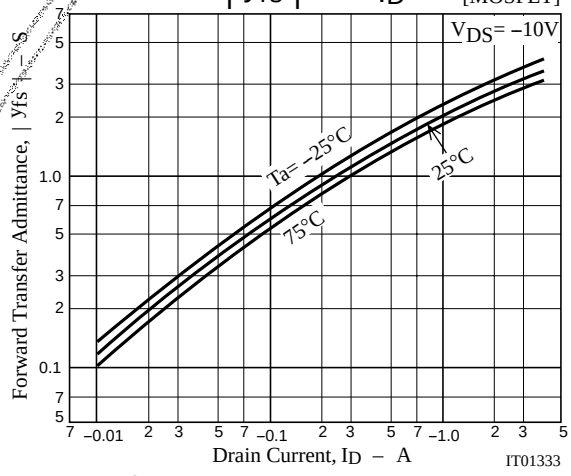
$R_{DS(on)}$ – I_D [MOSFET]



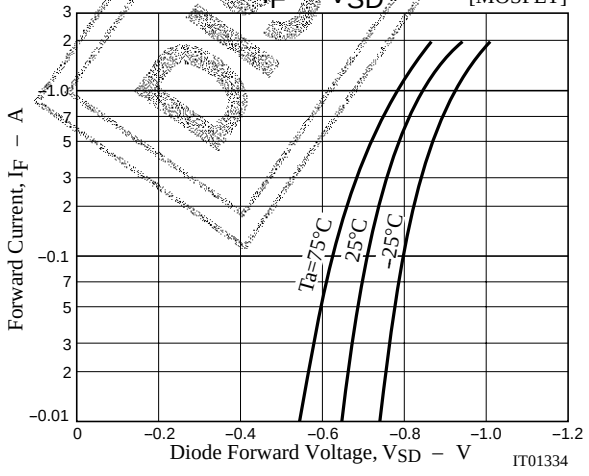
$R_{DS(on)}$ – Ta [MOSFET]



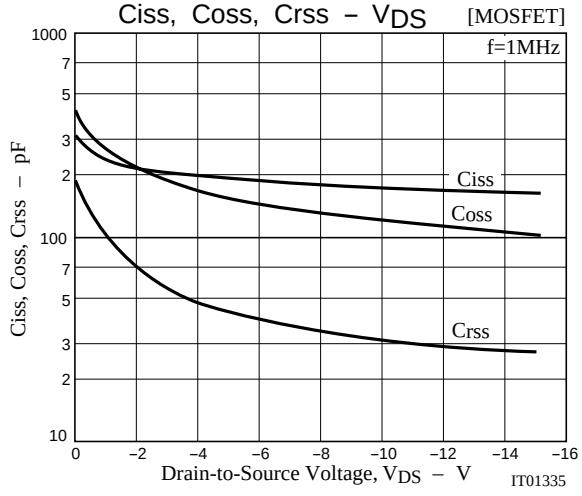
| y_{fs} | – I_D [MOSFET]



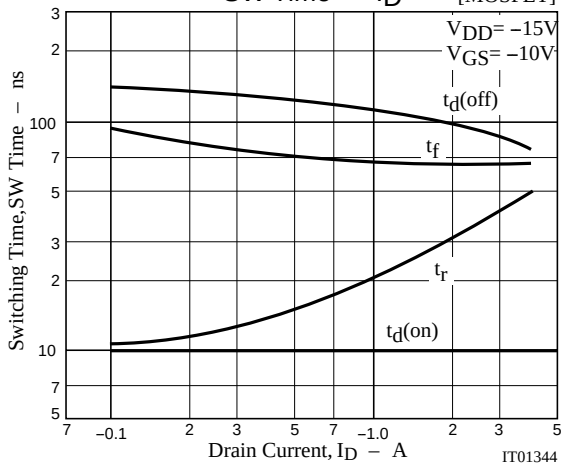
I_F – V_{SD} [MOSFET]



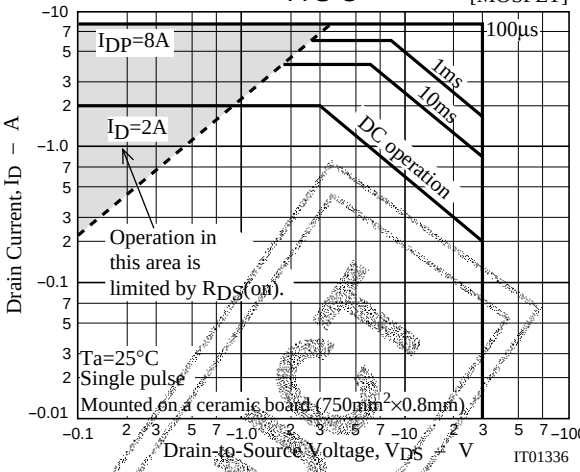
Ciss, Coss, Crss – V_{DS} [MOSFET]



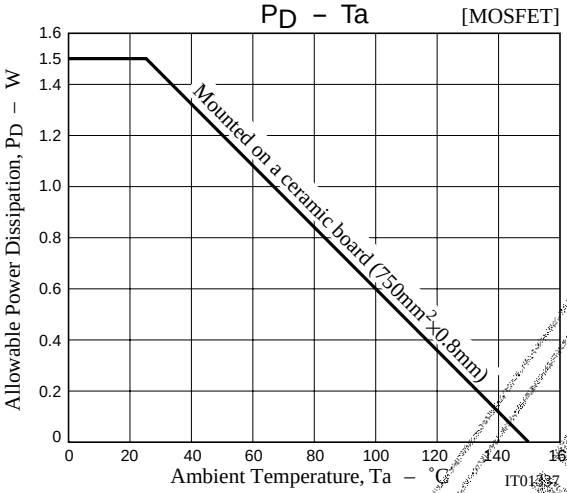
SW Time – I_D [MOSFET]



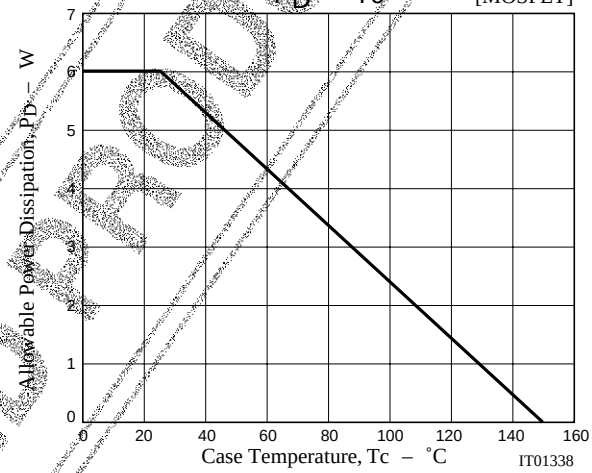
A S O [MOSFET]



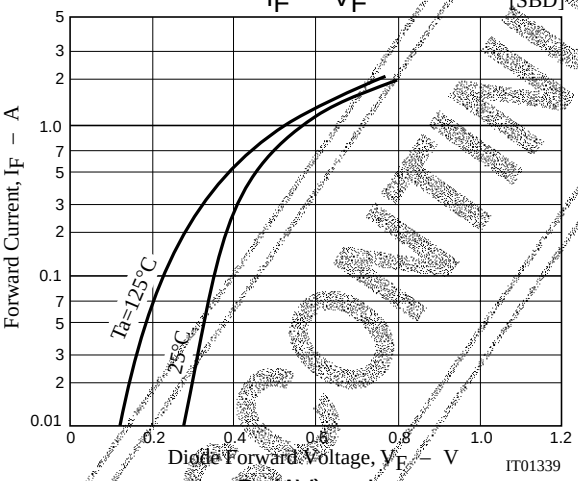
P_D – Ta [MOSFET]



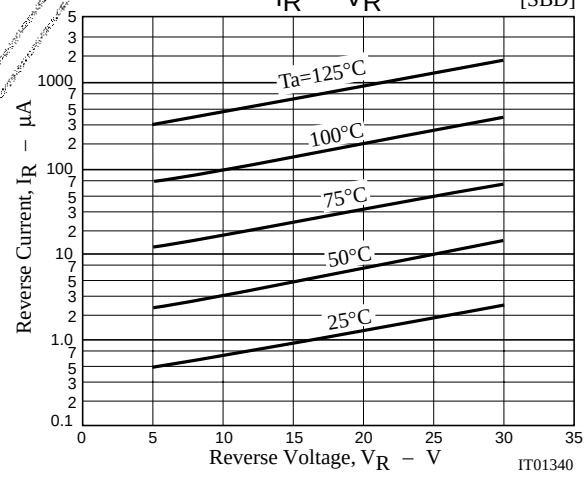
P_D – Tc [MOSFET]



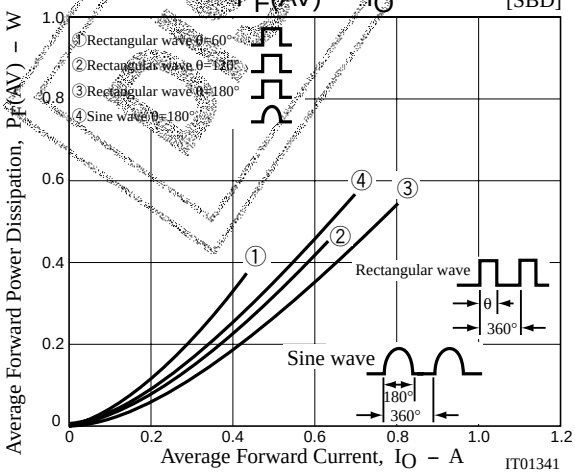
I_F – V_F [SBD]



I_R – V_R [SBD]



P_F(AV) – I_O [SBD]



C – V_R [SBD]