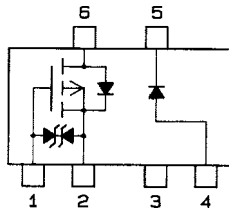


**FX854**MOSFET:P-Channel Silicon MOSFET  
SBD:Schottky Barrier Diode**DC-DC Converter Applications****Features**

- 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 FX854 is formed with 2 chips, one being equivalent to the 2SJ190 and the other the SB05-05P, placed in one package.

**Electrical Connection**

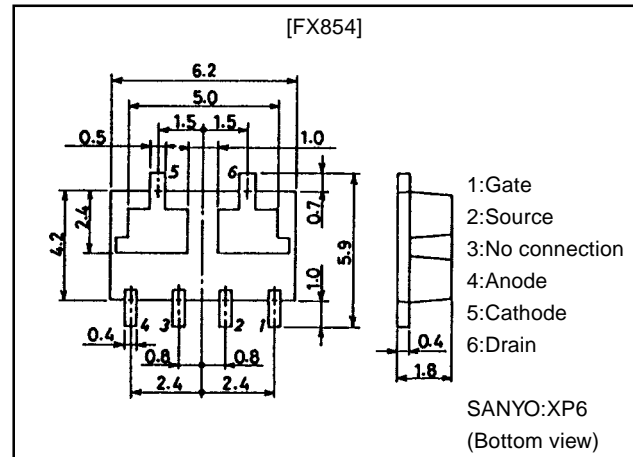
- 1:Gate  
2:Source  
3:No connection  
4:Anode  
5:Cathode  
6:Drain

(Top view)

**Package Dimensions**

unit:mm

2119

**Specifications****Absolute Maximum Ratings at Ta = 25°C**

Parameter	Symbol	Conditions	Ratings	Unit
[MOSFET]				
Drain-to-Source Voltage	$V_{DSS}$		-60	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 15$	V
Drain Current (DC)	$I_D$		-1	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu s$ , duty cycle $\leq 1\%$	-4	A
Allowable Power Dissipation	$P_D$	$T_c = 25^\circ C$	6	W
	$P_D$	Mounted on ceramic board (750mm <sup>2</sup> × 0.8mm)	1.5	W
Channel Temperature	$T_{ch}$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C
[SBD]				
Repetitive Peak Reverse Voltage	$V_{RRM}$		50	V
Non-repetitive Peak Reverse Surge Voltage	$V_{RSM}$		55	V
Average Rectified Current	$I_O$		500	mA
Surge Forward Current	$I_{FSM}$	50Hz sine wave, 1cycle	5	A
Junction Temperature	$T_j$		-55 to +125	°C
Storage Temperature	$T_{stg}$		-55 to +125	°C

· Marking:854

Continued on next page.

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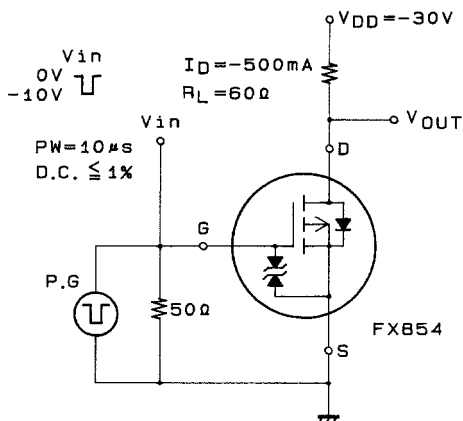
# FX854

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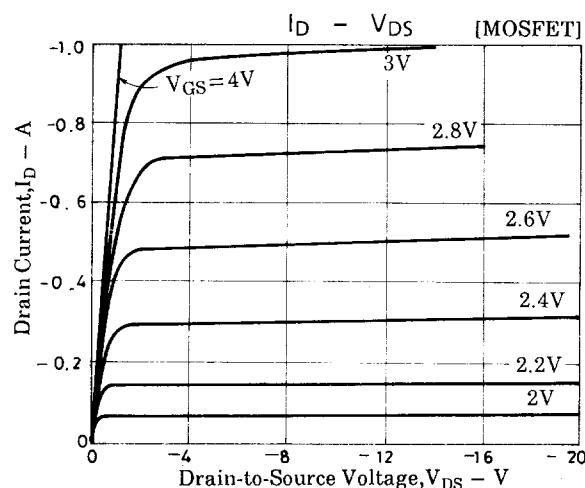
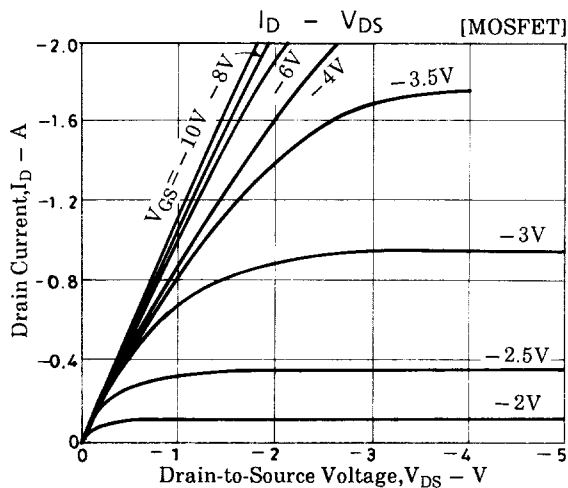
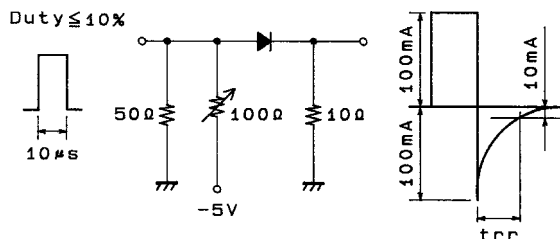
## Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
D-S Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1mA, V_{GS} = 0$	-60			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -60V, V_{GS} = 0$			-100	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 12V, V_{DS} = 0$			$\pm 10$	$\mu A$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -10V, I_D = -1mA$	-1.0		-2.0	V
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS} = -10V, I_D = -500mA$	0.6	1.0		S
Static Drain-to-Source ON-State Resistance	$R_{DS(on)}$	$I_D = -500mA, V_{GS} = -10V$		0.9	1.2	$\Omega$
	$R_{DS(on)}$	$I_D = -500mA, V_{GS} = -4V$			1.2	$\Omega$
Input Capacitance	$C_{iss}$	$V_{DS} = -20V, f = 1MHz$		160		pF
Output Capacitance	$C_{oss}$	$V_{DS} = -20V, f = 1MHz$		60		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS} = -20V, f = 1MHz$		10		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	$V_{SD}$	$I_S = -1A, V_{GS} = 0$			-0.9	V
[SBD]						
Reverse Voltage	$V_R$	$I_R = 200\mu A$	50			V
Forward Voltage	$V_F$	$I_F = 500mA$			0.55	V
Reverse Current	$I_R$	$V_R = 25V$			50	$\mu A$
Interterminal Capacitance	$C$	$V_R = 10V, f = 1MHz$ Cycle		18		pF
Reverse Recovery Time	$t_{rr}$	$I_F = I_R = 100mA$ , See specified Test Circuit			10	ns
Thermal Resistance	$R_{thj-a}$	Mounted on ceramic board (750mm <sup>2</sup> ×0.8mm)		100		°C/W

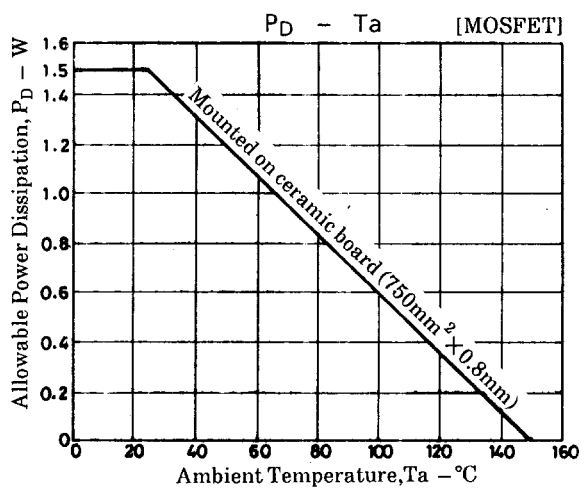
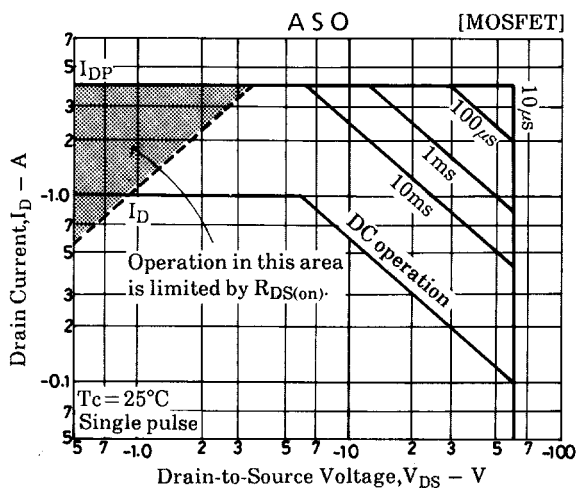
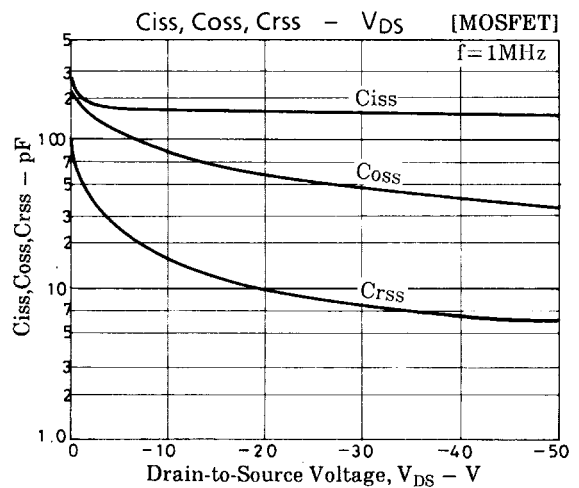
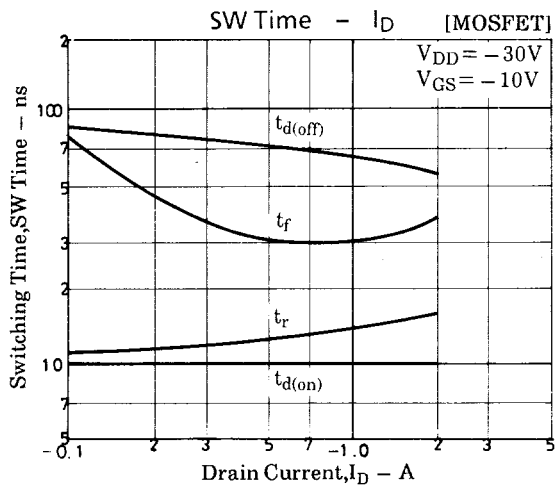
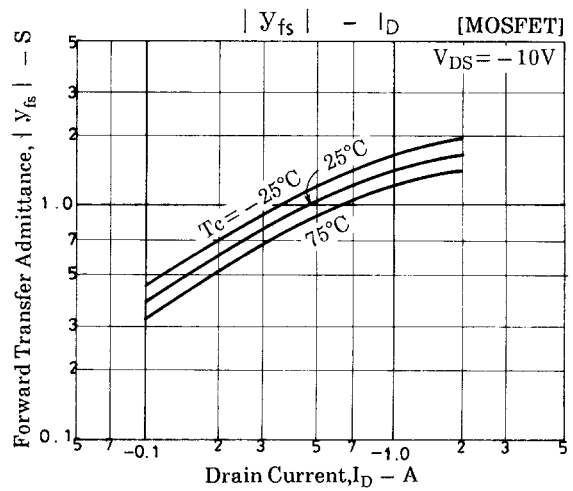
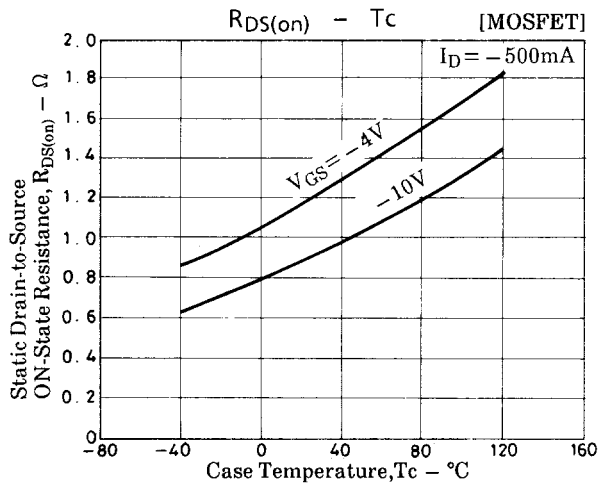
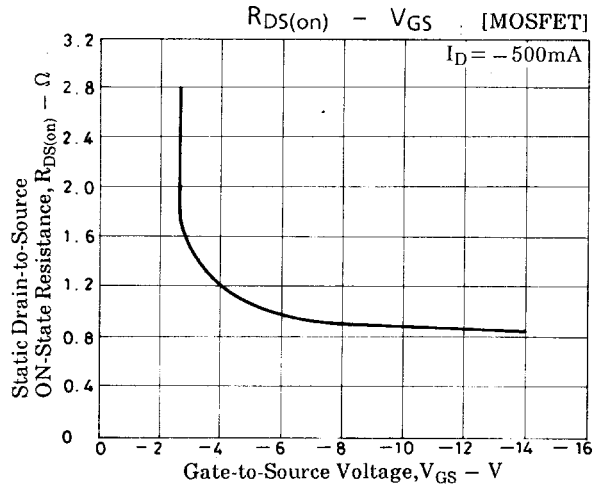
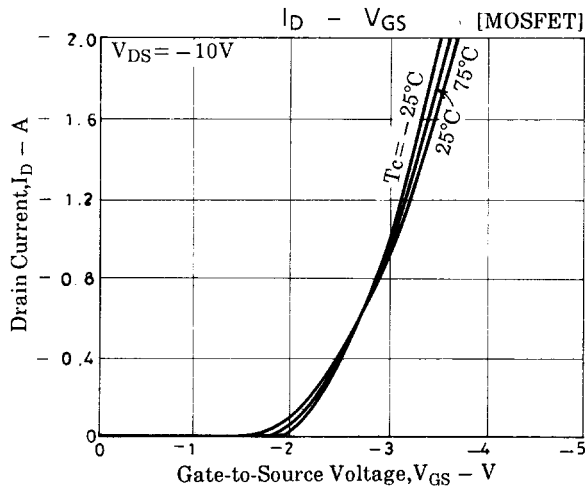
### Switching Time Test Circuit [MOSFET]



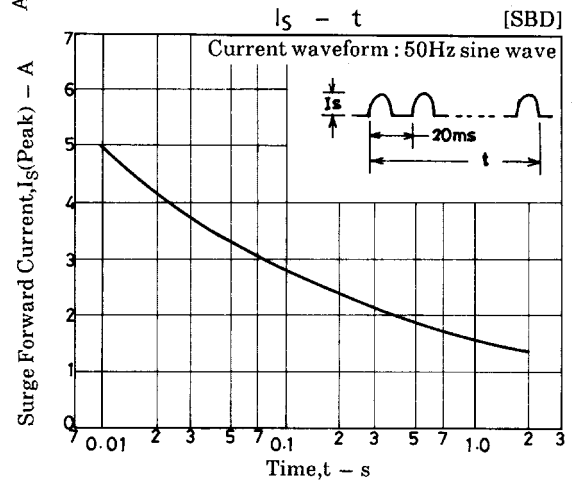
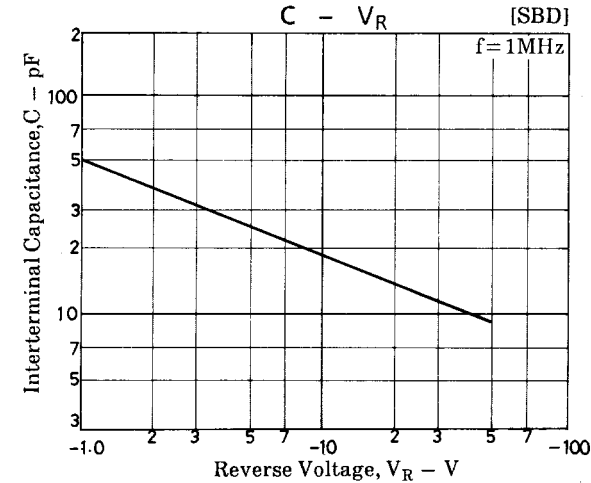
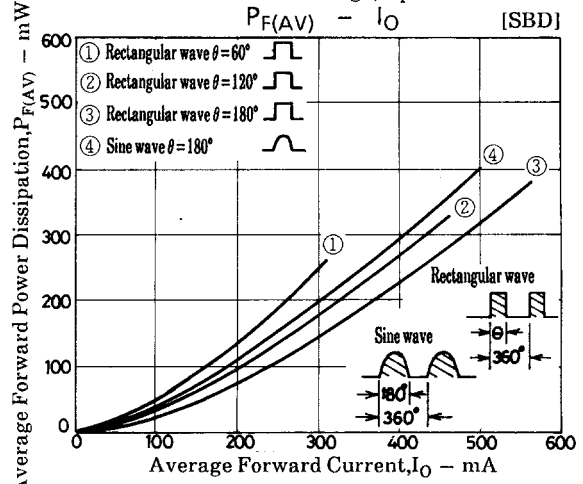
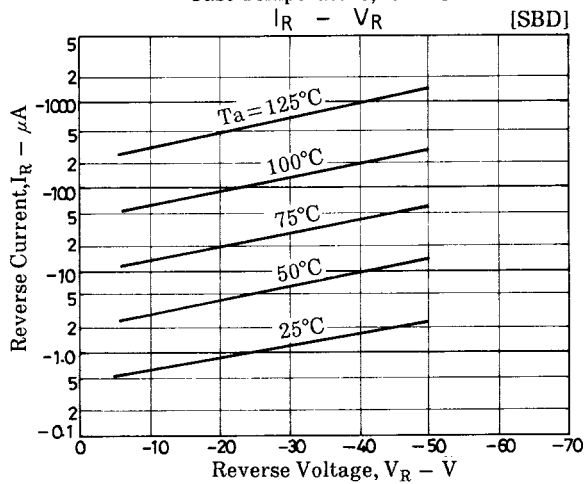
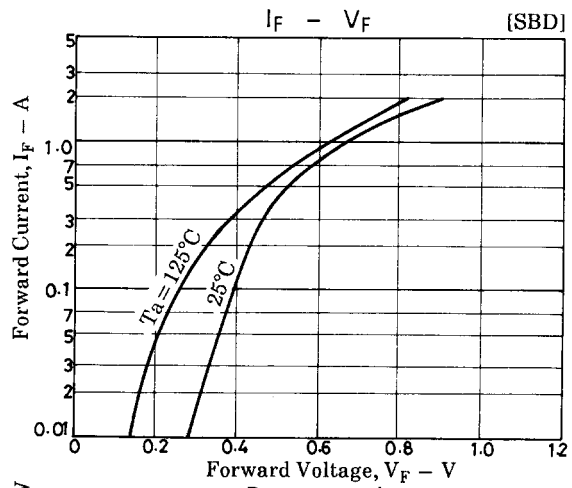
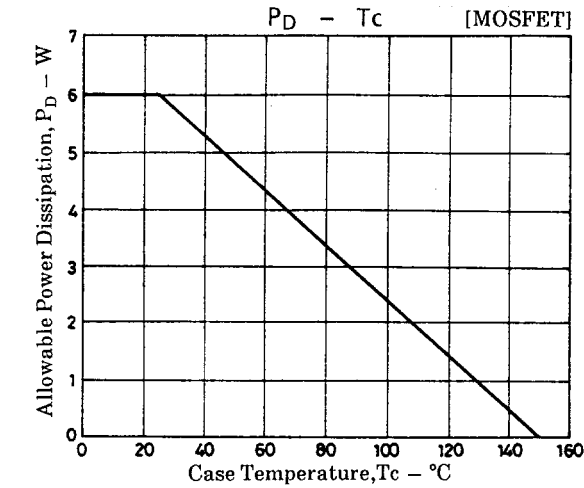
### Trr Test Circuit [SBD]



# FX854



# FX854



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