Ordering number:EN5263

FP502

N-Channel Silicon MOSFET
Silicon Schottky Barrier Diode

DC-DC Converter Applications

Features

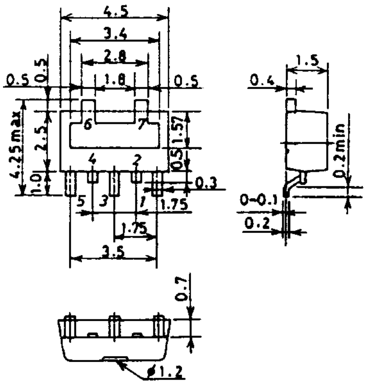
- Composite type with a high-speed N-channel MOSFET and a low-forward voltage Schottky barrier diode contained in the PCP4 package, saving the mount space greatly.

Package Dimensions

unit:mm

2132

[FP502]



1:Source, Anode
2:Common (Drain, Cathode)
3:Source, Anode
4Common (Drain, Cathode)
5:Gate
6:Common (Drain, Cathode)
7:Common (Drain, Cathode)

SANYO:PCP4
(Bottom view)

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Allowable Power Dissipation	P_D	Tc=25˚C, 1 unit	3.5	W
	P_D	Mounted on ceramic board (250mm^2×0.8mm) 1 unit	1.5	W
Storage Temperature	Tstg		–55 to +150	˚C
[MOS block]				
Drain-to-Source Voltage	V_{DSS}		11	V
Gate-to-Source Voltage	V_{GSS}		±10	V
Drain Current (DC)	I_D		2	A
Drain Current (Pulse)	I_{DP}	PW≤10µs, duty cycle ≤1%	8	A
Channel Temperature	Tch		150	˚C
[Diode block]				
Average Rectified Current	I_O		500	mA

Electrical Characteristics at Ta=25˚C

Parameter	Symbol	Conditons	Ratings			Unit
			min	typ	max	
[MOS block]						
D-S Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0	11			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=10.4V, V_{GS}=0			400	µA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0			±10	µA
Cutoff Voltage	$V_{GS(off)}$	V_{DS}=10V, I_D=1mA	1.0		4.0	V
Forward Transfer Admittance	$\lvert Y_{fs} \rvert$	V_{DS}=10V, I_D=1A	1.2	2.2		S
Static Drain-to-Source ON-State Resistance	$R_{DS(on)}$	I_D=1A, V_{GS}=10V		140	200	mΩ
	$R_{DS(on)}$	I_D=500mA, V_{GS}=4V		200	320	mΩ
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		150		pF
Output Capacitance	Coss	V_{DS}=10V, f=1NHZ		200		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		45		pF

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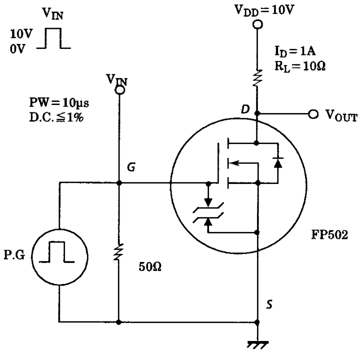
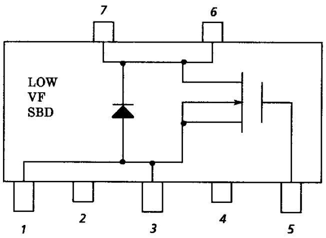
Continued from preceding page.

Parameter	Symbol	Conditons	Ratings			Unit
			min	typ	max	
[MOS block]						
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		10		ns
Rise Time	t_r	See specified Test Circuit.		25		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		25		ns
Fall Time	t_f	See specified Test Circuit.		20		ns
[Diode block]						
Forward Voltage	V_F	I_F=500mA		0.4	0.45	V
Reverse Recovery Time	t_{rr}	I_F=500mA, di/dt=50A/μs		20	30	ns

Switching Time Test Circuit



Electrical Connection



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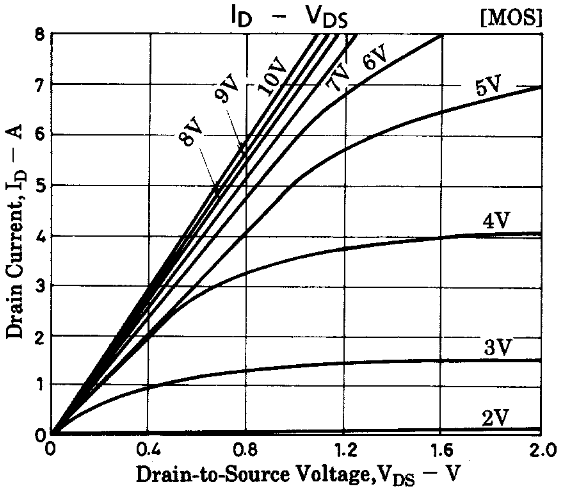
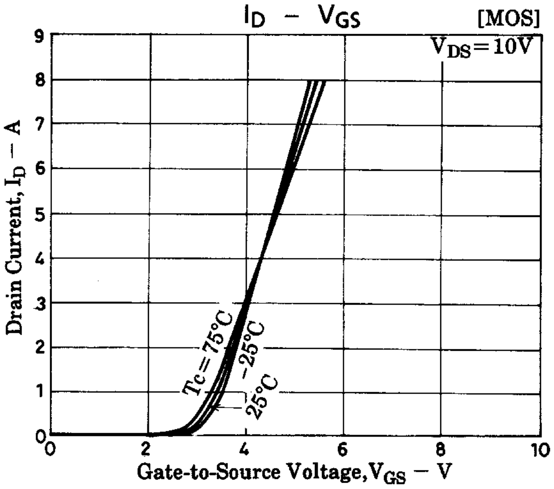
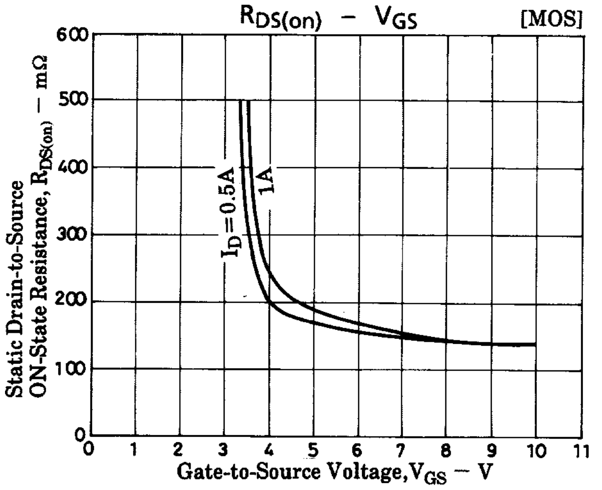
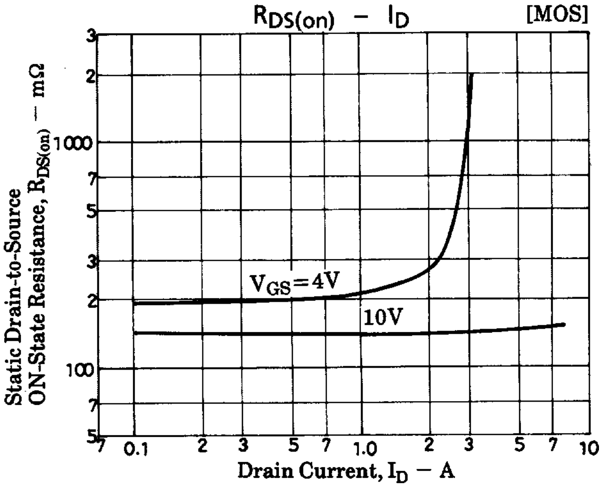
(Top view)

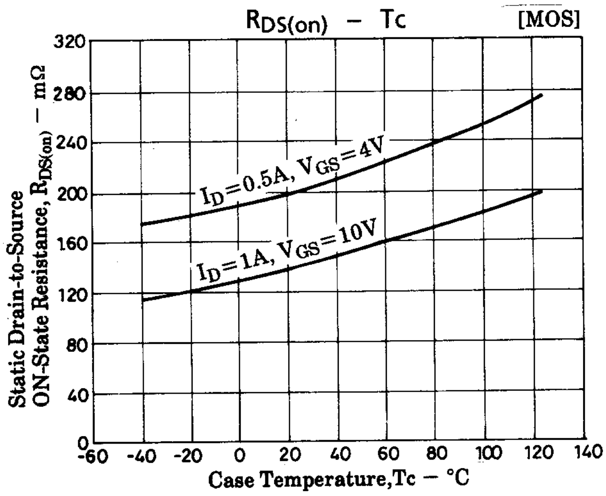




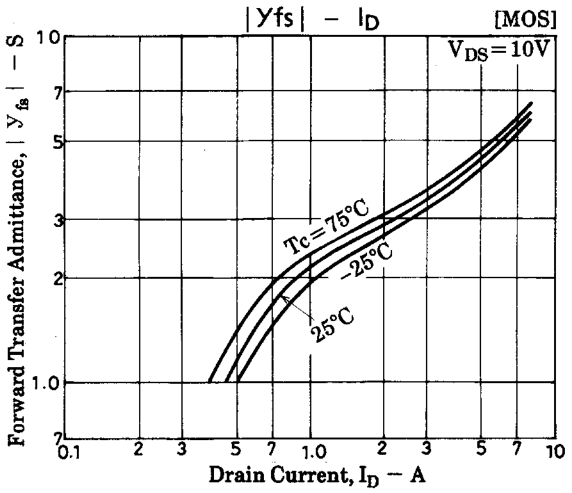




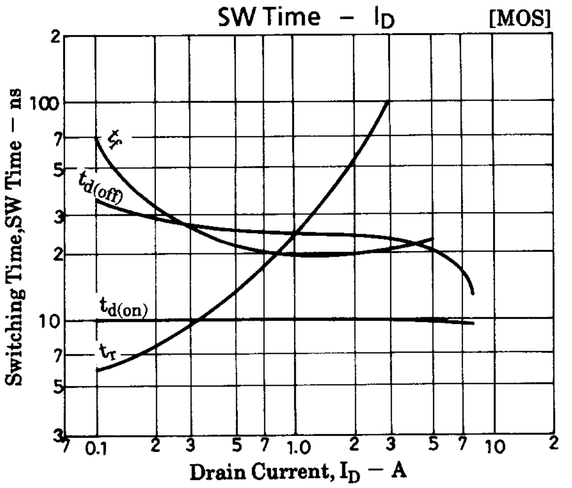
RDS(on) – Tc



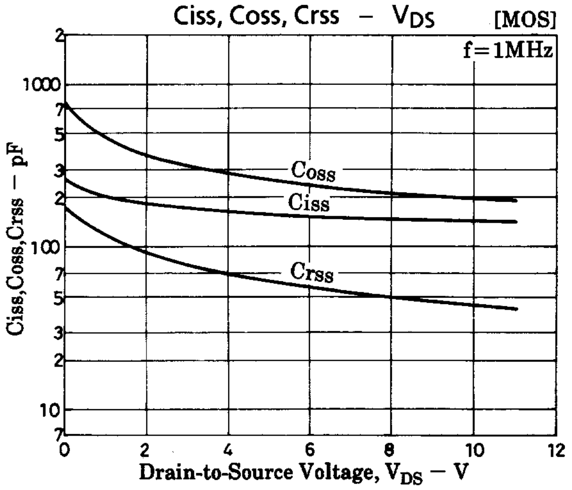
|Yfs| – ID



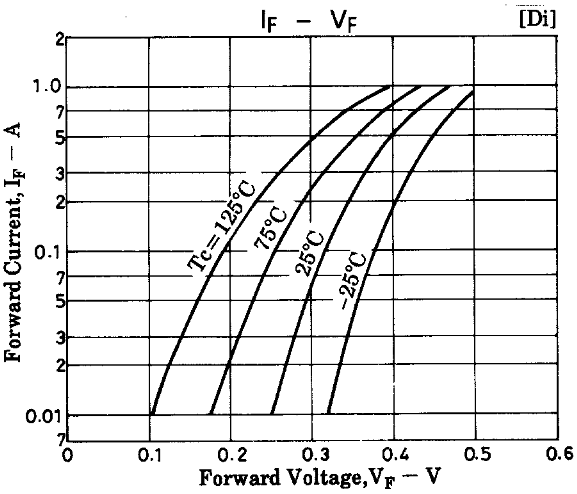
SW Time – ID



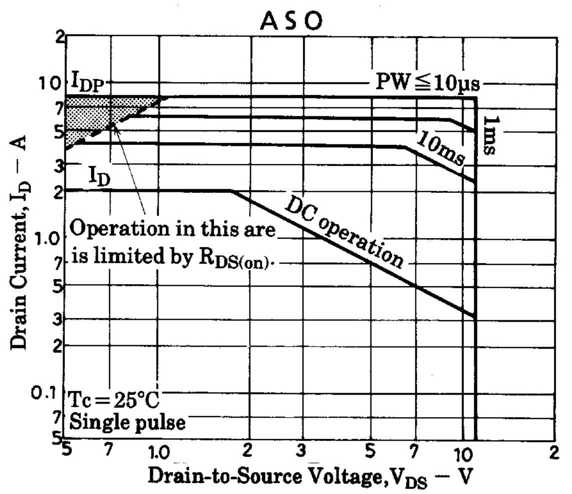
Ciss, Coss, Crss – VDS



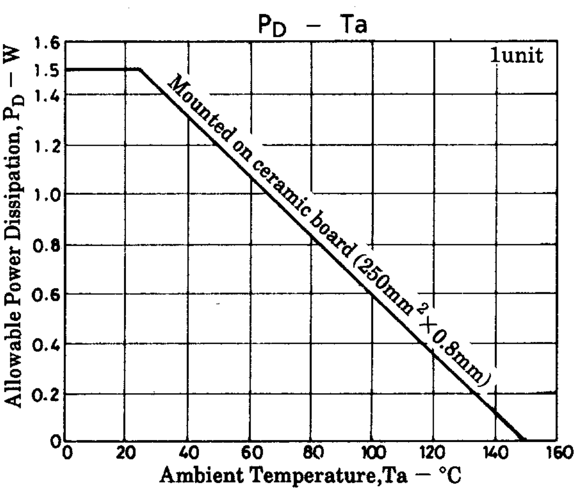
IF – VF



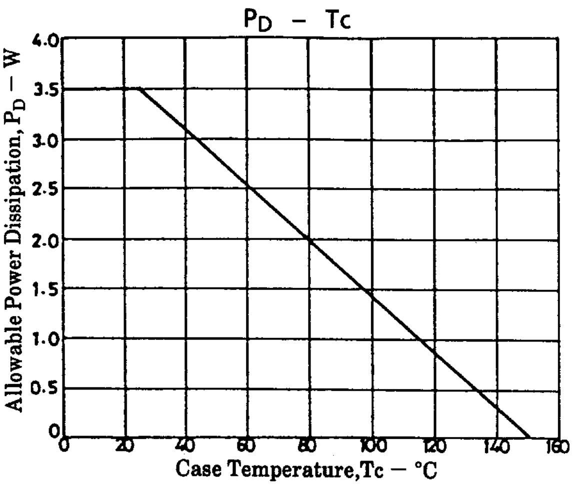
ASO



PD – Ta



PD – Tc



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