



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

MCH6421 — N-Channel Silicon MOSFET General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 1.8V drive.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V _{DSS}		20	V
Gate-to-Source Voltage	V _{GSS}		±12	V
Drain Current (DC)	I _D		5.5	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	22	A
Allowable Power Dissipation	P _D	When mounted on ceramic substrate (1200mm ² ×0.8mm)	1.5	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V _{(BR)DSS}	I _D =1mA, V _{GS} =0V	20			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =10V, I _D =1mA	0.4		1.3	V
Forward Transfer Admittance	y _{fs}	V _{DS} =10V, I _D =2A	2.0	3.8		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =2A, V _{GS} =4.5V		29	38	mΩ
	R _{DS(on)2}	I _D =1A, V _{GS} =2.5V		43	61	mΩ
	R _{DS(on)3}	I _D =0.5A, V _{GS} =1.8V		69	99	mΩ

Marking : KV

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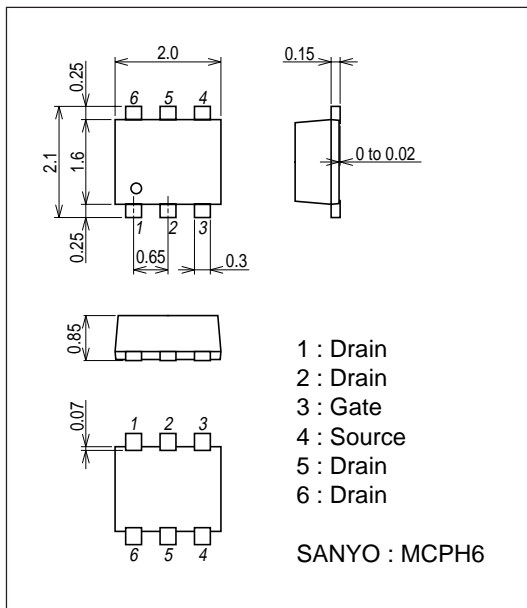
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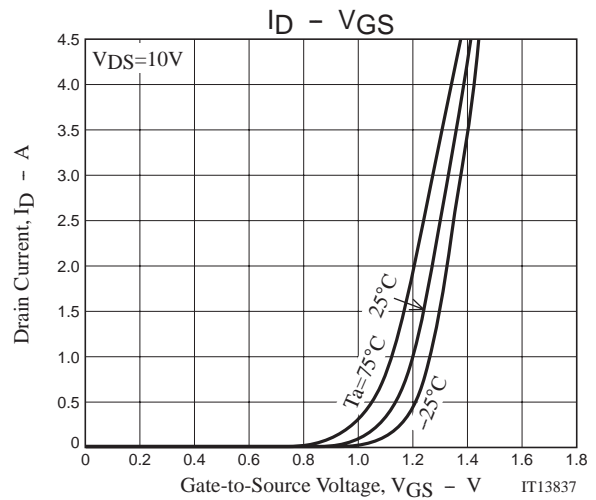
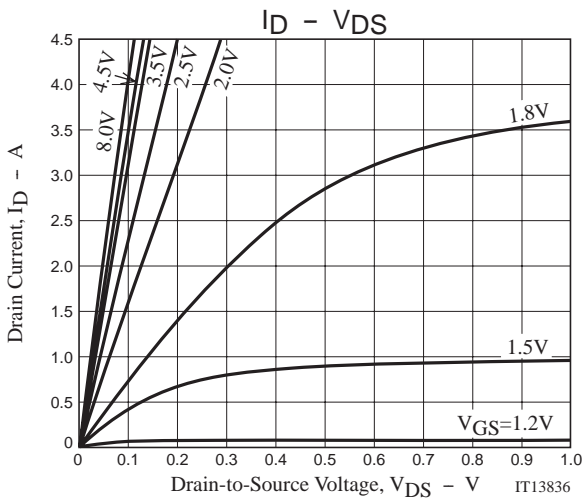
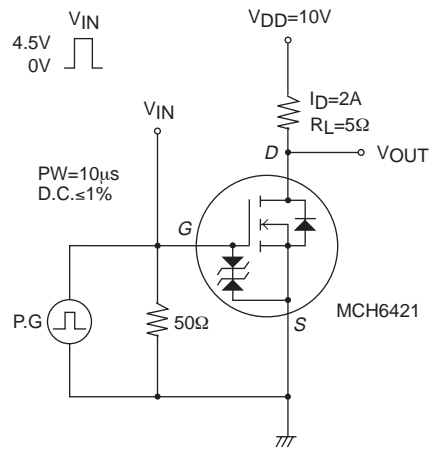
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V _{DS} =10V, f=1MHz		410		pF
Output Capacitance	Coss	V _{DS} =10V, f=1MHz		84		pF
Reverse Transfer Capacitance	Crss	V _{DS} =10V, f=1MHz		59		pF
Turn-ON Delay Time	t _{d(on)}	See specified Test Circuit.		7.5		ns
Rise Time	t _r	See specified Test Circuit.		26		ns
Turn-OFF Delay Time	t _{d(off)}	See specified Test Circuit.		38		ns
Fall Time	t _f	See specified Test Circuit.		32		ns
Total Gate Charge	Qg	V _{DS} =10V, V _{GS} =4.5V, I _D =5.5A		5.1		nC
Gate-to-Source Charge	Qgs	V _{DS} =10V, V _{GS} =4.5V, I _D =5.5A		0.7		nC
Gate-to-Drain "Miller" Charge	Qgd	V _{DS} =10V, V _{GS} =4.5V, I _D =5.5A		1.7		nC
Diode Forward Voltage	V _{SD}	I _S =5.5A, V _{GS} =0V		0.8	1.2	V

Package Dimensions

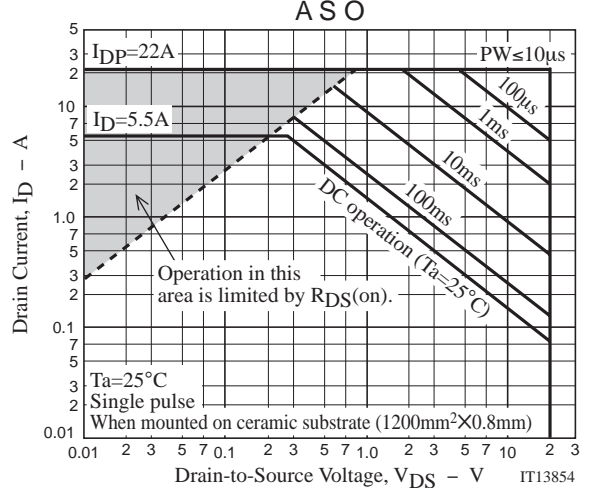
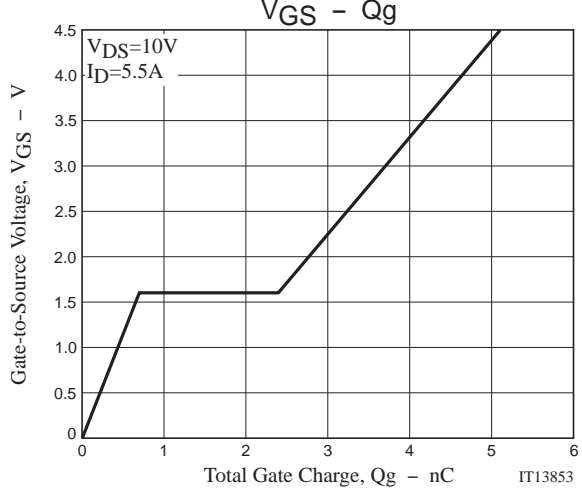
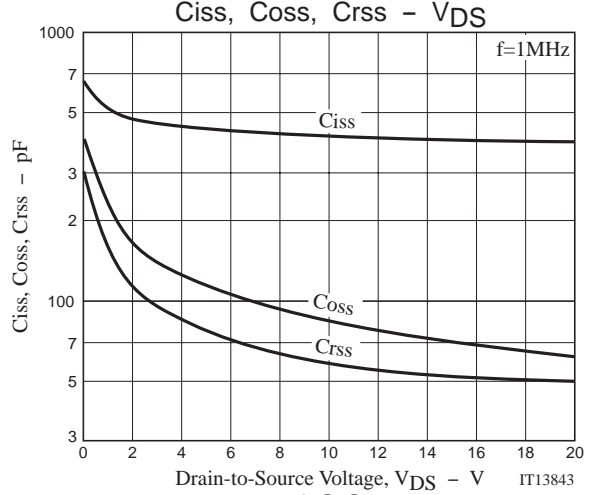
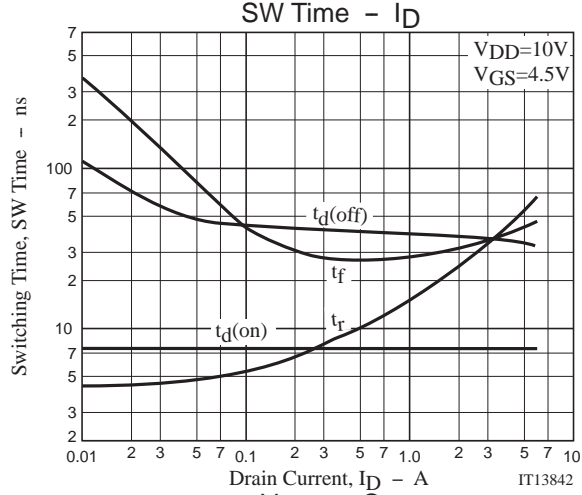
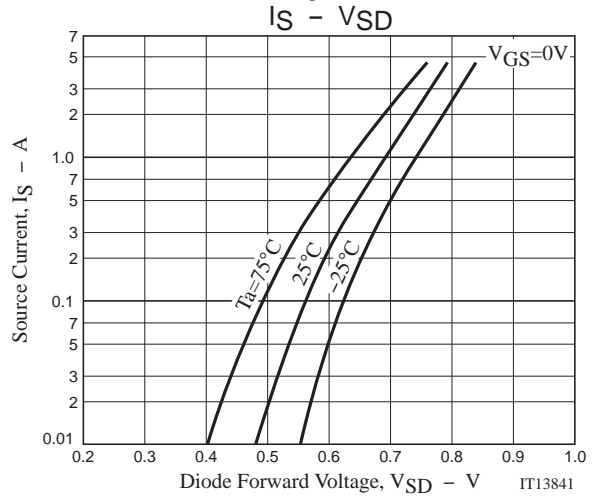
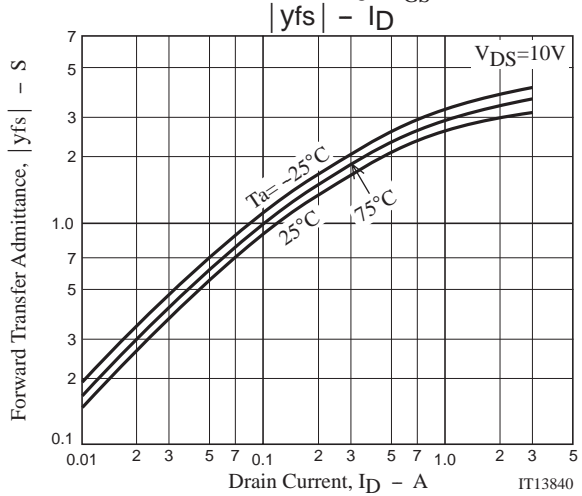
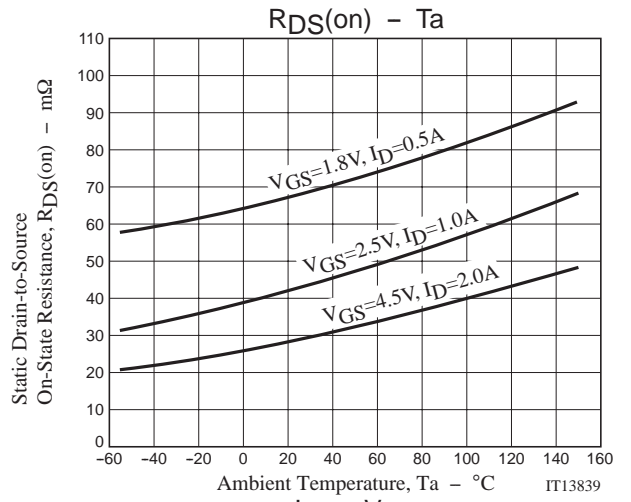
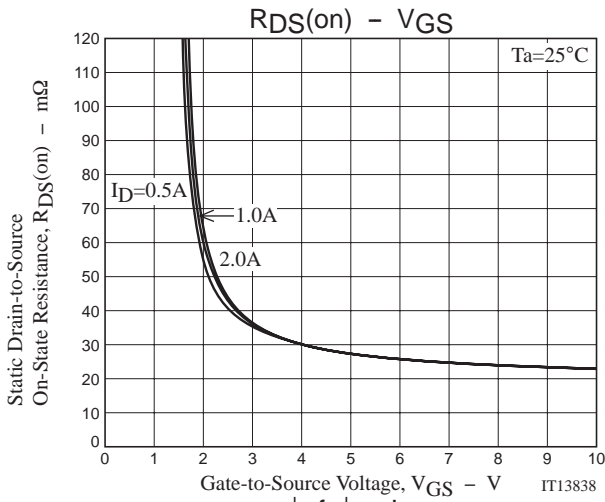
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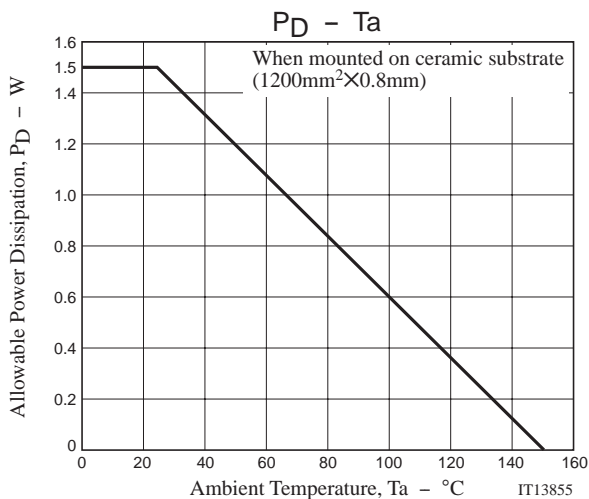
Switching Time Test Circuit



MCH6421



MCH6421



Note on usage : Since the MCH6421 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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