



SANYO Semiconductors

DATA SHEET

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 $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		20	V
Gate-to-Source Voltage	V_{GS}		± 12	V
Drain Current (DC)	I_D		5.5	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	22	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (1200mm ² ×0.8mm)	1.5	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}$, $V_{GS}=0\text{V}$	20			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20\text{V}$, $V_{GS}=0\text{V}$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8\text{V}$, $V_{DS}=0\text{V}$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$, $I_D=1\text{mA}$	0.4		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$, $I_D=2\text{A}$	2.0	3.8		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=2\text{A}$, $V_{GS}=4.5\text{V}$		29	38	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=1\text{A}$, $V_{GS}=2.5\text{V}$		43	61	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D=0.5\text{A}$, $V_{GS}=1.8\text{V}$		69	99	$\text{m}\Omega$

Marking : KV

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SANYO Semiconductor Co., Ltd.

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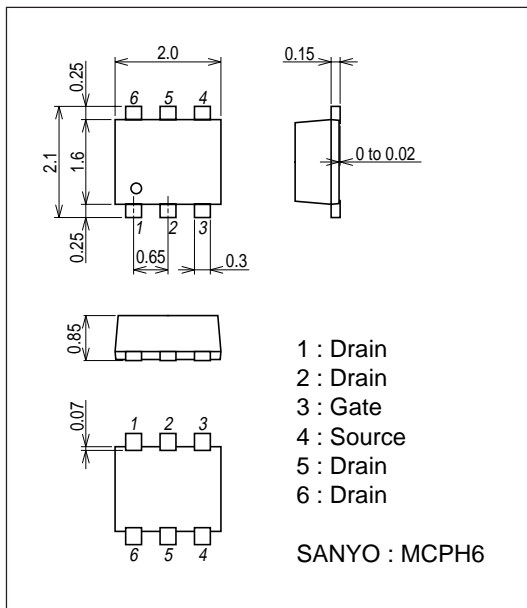
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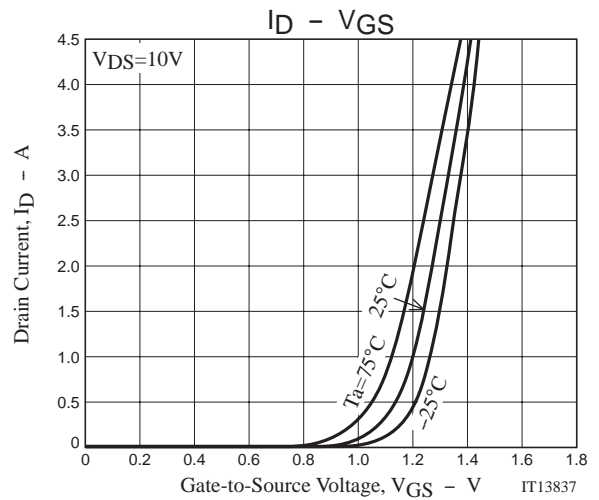
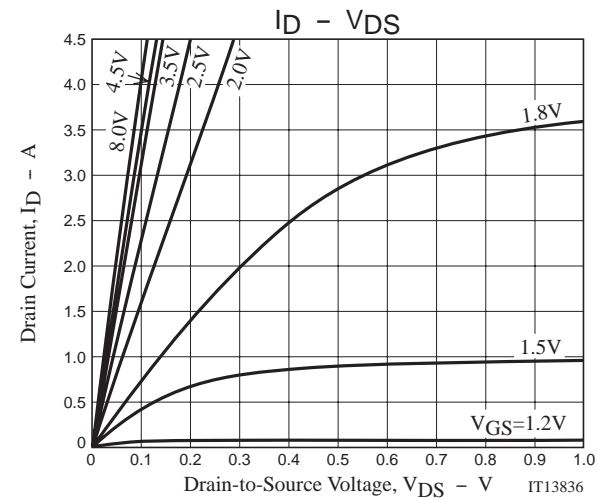
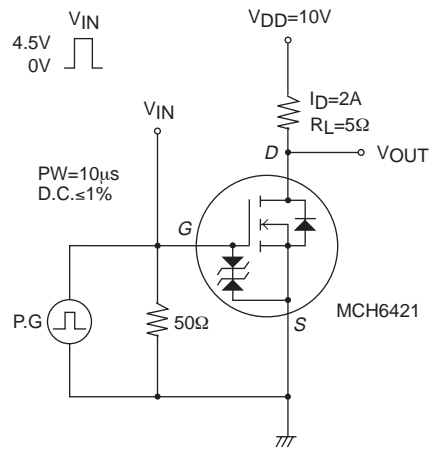
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V _{DS} =10V, f=1MHz		410		pF
Output Capacitance	Coss	V _{DS} =10V, f=1MHz		84		pF
Reverse Transfer Capacitance	Crss	V _{DS} =10V, f=1MHz		59		pF
Turn-ON Delay Time	t _{d(on)}	See specified Test Circuit.		7.5		ns
Rise Time	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	Q _g	V _{DS} =10V, V _{GS} =4.5V, I _D =5.5A		5.1		nC
Gate-to-Source Charge	Q _{gs}	V _{DS} =10V, V _{GS} =4.5V, I _D =5.5A		0.7		nC
Gate-to-Drain "Miller" Charge	Q _{gd}	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

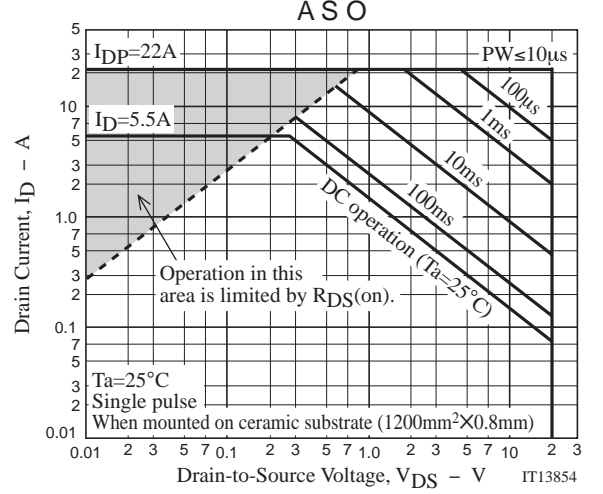
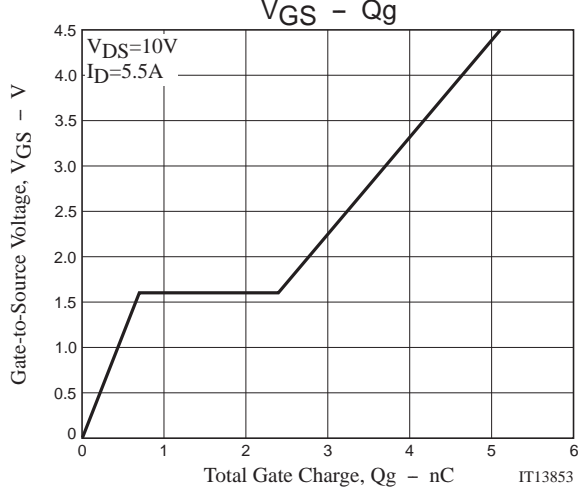
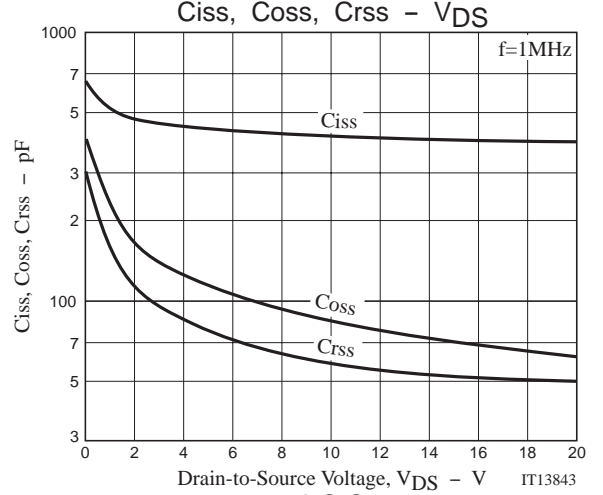
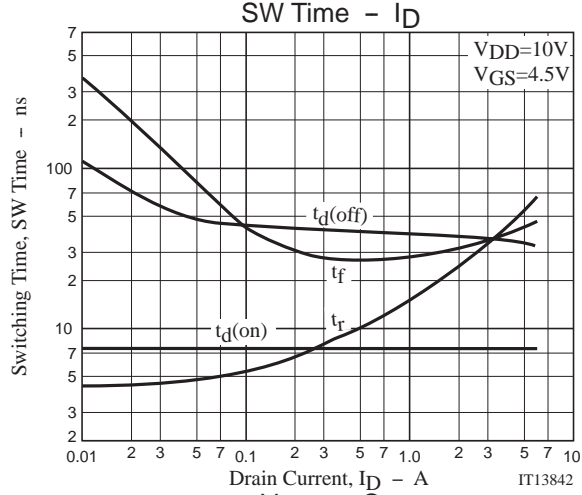
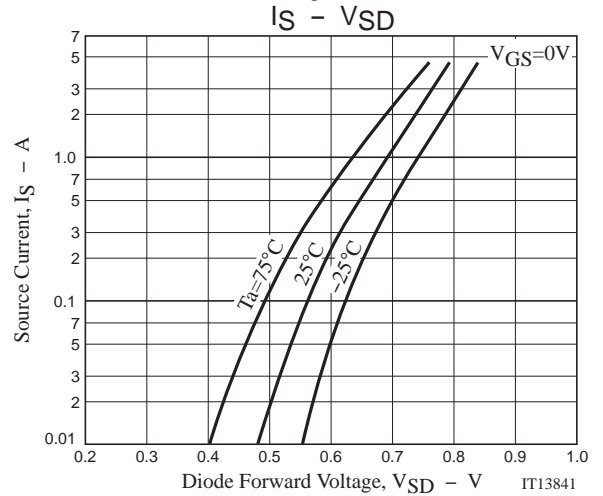
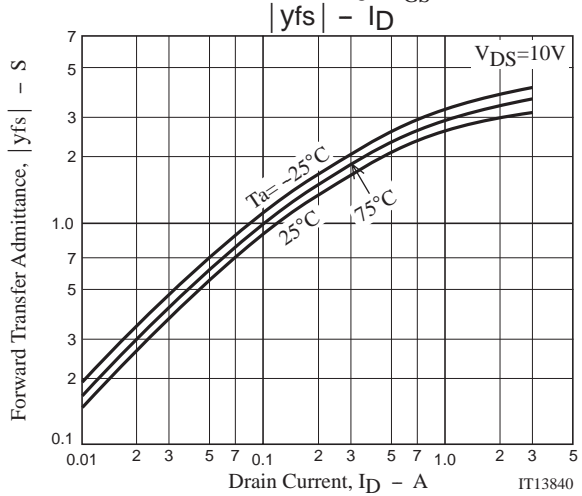
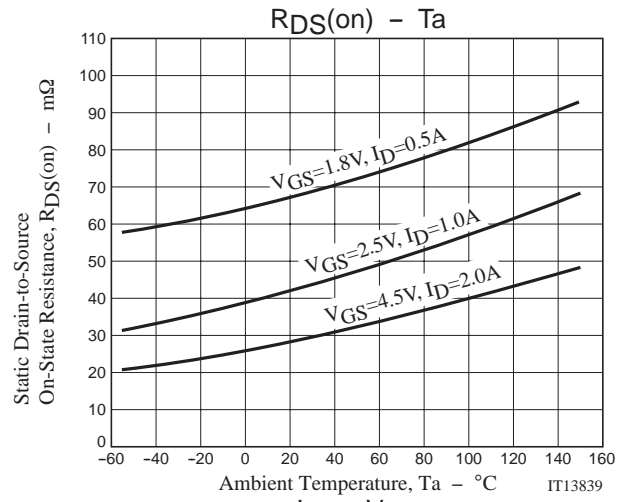
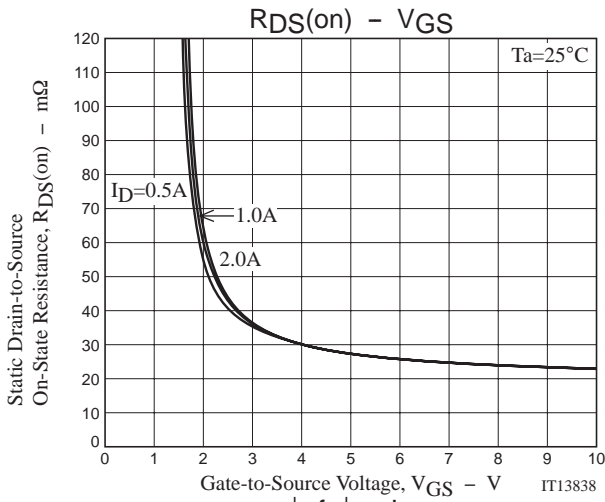
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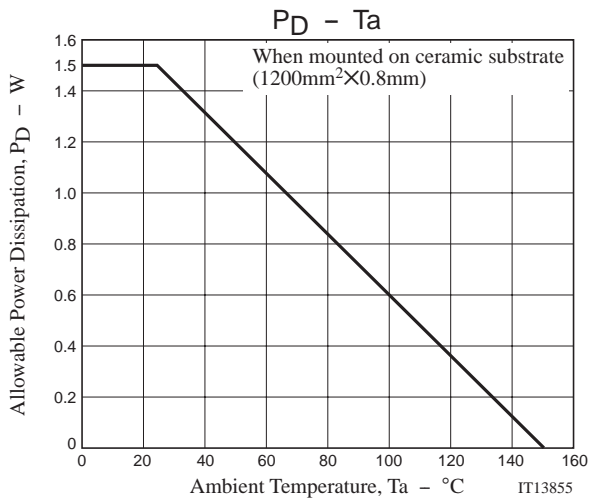
Switching Time Test Circuit



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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