



SANYO Semiconductors

DATA SHEET

N-Channel Silicon MOSFET

MCH6440 — General-Purpose Switching Device Applications

Features

- 1.5V drive.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V _{DSS}		55	V
Gate-to-Source Voltage *1	V _{GSS}		10	V
Drain Current (DC)	I _D		0.6	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	2.4	A
Allowable Power Dissipation	P _D	When mounted on ceramic substrate (2000mm ² ×0.8mm)	1.5	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

*1 Note, when designing a circuit using this product, that it has a gate (oxide film) protection diode connected only between its gate and source.

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	55			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =55V, V _{GS} =0V			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =8V, V _{DS} =0V			1	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =10V, I _D =100μA	0.4		1.3	V
Forward Transfer Admittance	y _{fs}	V _{DS} =10V, I _D =300mA	420	700		mS
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =300mA, V _{GS} =4V		2.0	2.7	Ω
	R _{DS(on)2}	I _D =150mA, V _{GS} =2.5V		2.1	3.0	Ω
	R _{DS(on)3}	I _D =10mA, V _{GS} =1.5V		3.0	6.0	Ω

Marking : ZP

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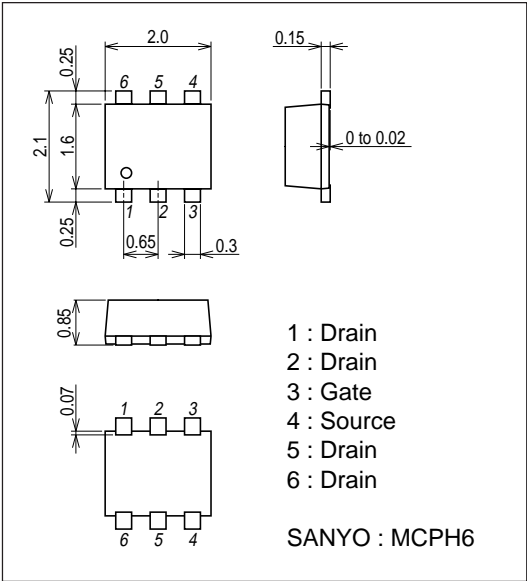
MCH6440

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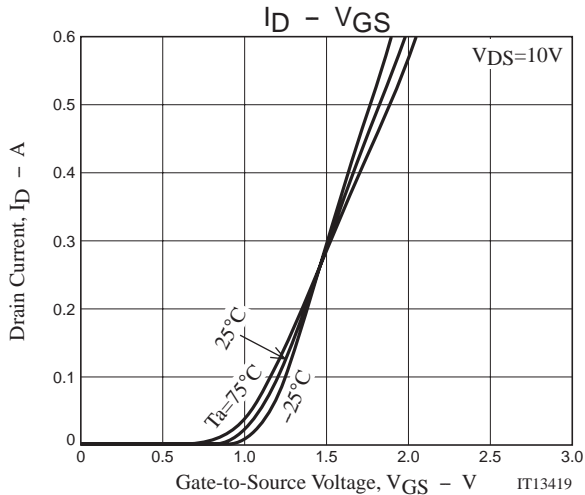
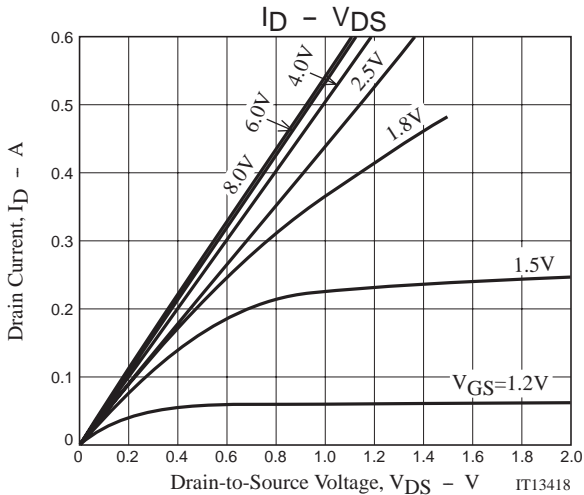
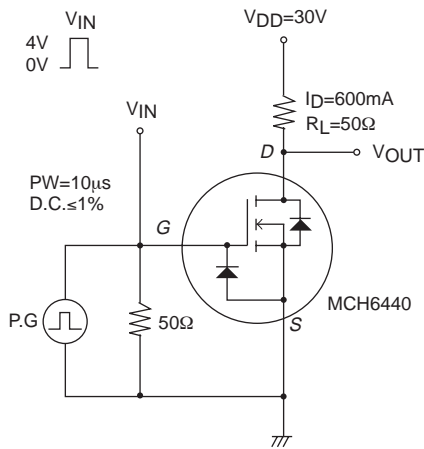
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	$V_{DS}=20V, f=1MHz$		30		pF
Output Capacitance	Coss	$V_{DS}=20V, f=1MHz$		6.1		pF
Reverse Transfer Capacitance	Crss	$V_{DS}=20V, f=1MHz$		3.9		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		4.1		ns
Rise Time	t_r	See specified Test Circuit.		5.6		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		8.6		ns
Fall Time	t_f	See specified Test Circuit.		8.4		ns
Total Gate Charge	Qg	$V_{DS}=30V, V_{GS}=4V, I_D=600mA$		0.87		nC
Gate-to-Source Charge	Qgs	$V_{DS}=30V, V_{GS}=4V, I_D=600mA$		0.12		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=30V, V_{GS}=4V, I_D=600mA$		0.37		nC
Diode Forward Voltage	V_{SD}	$I_S=600mA, V_{GS}=0V$		0.94	1.2	V

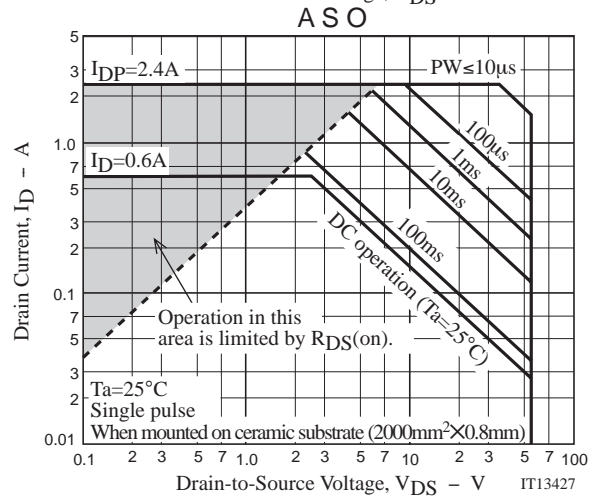
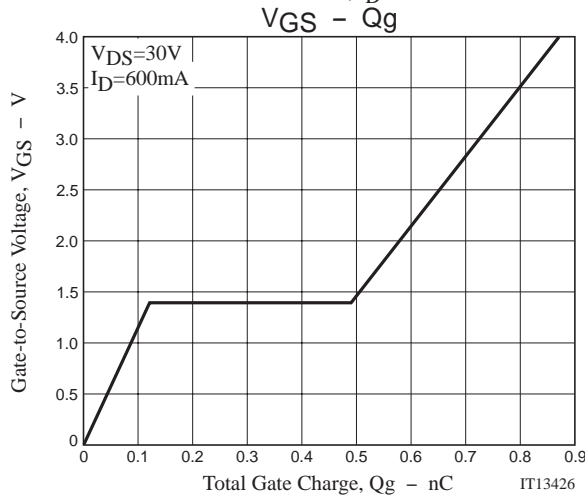
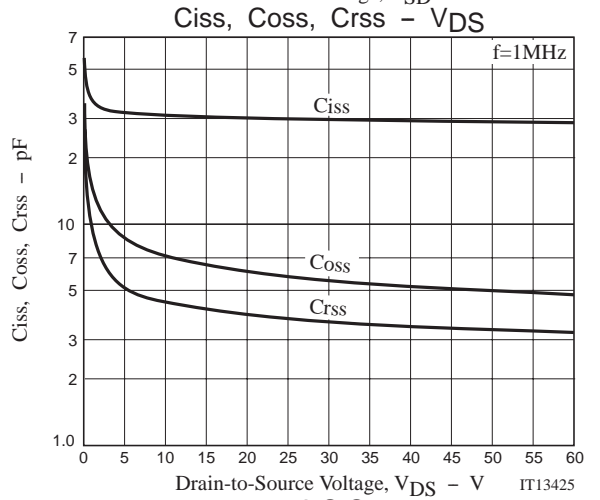
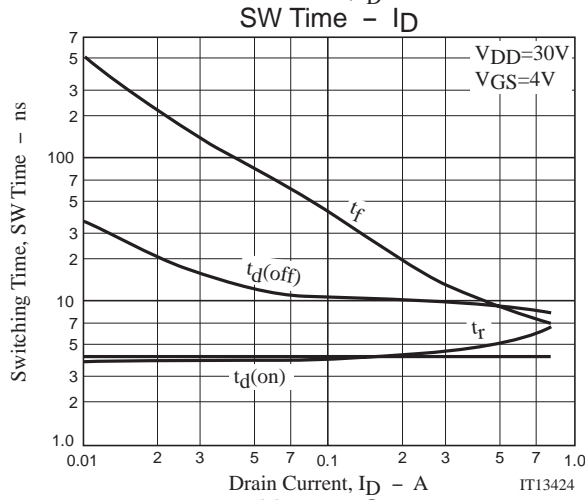
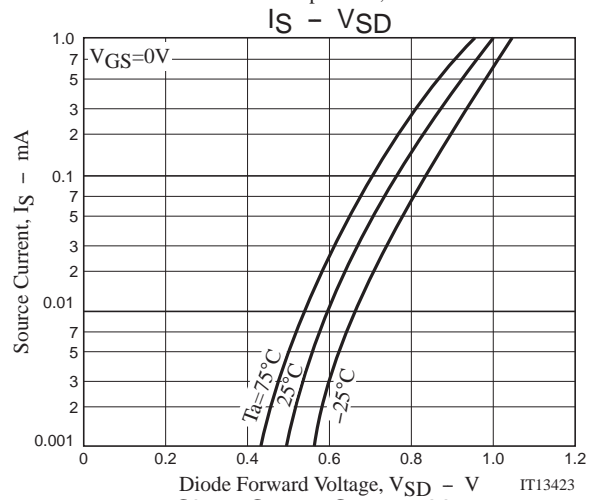
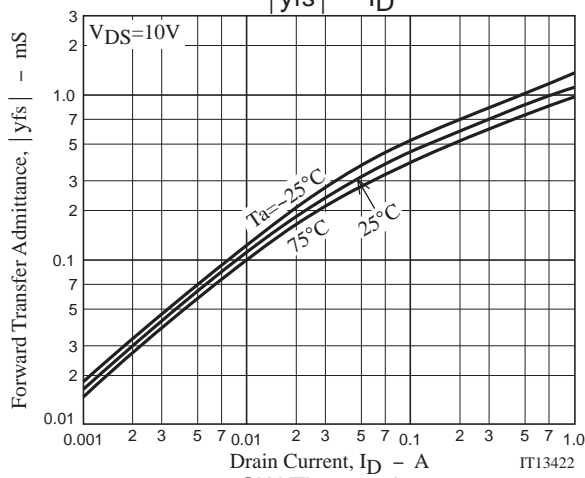
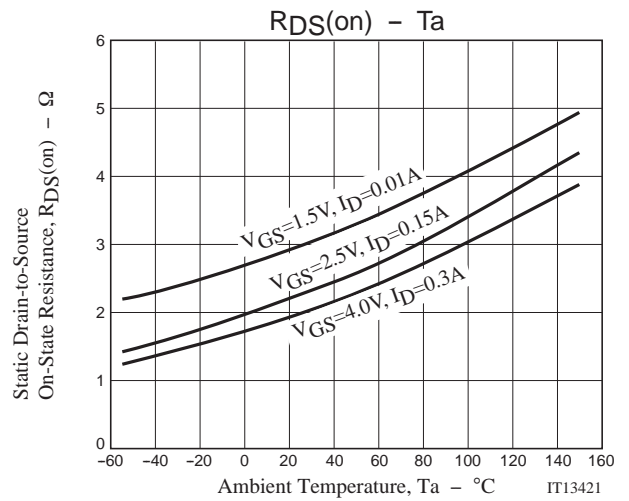
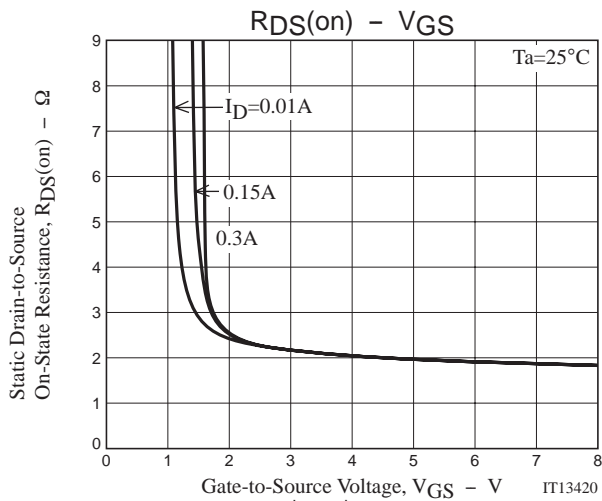
Package Dimensions

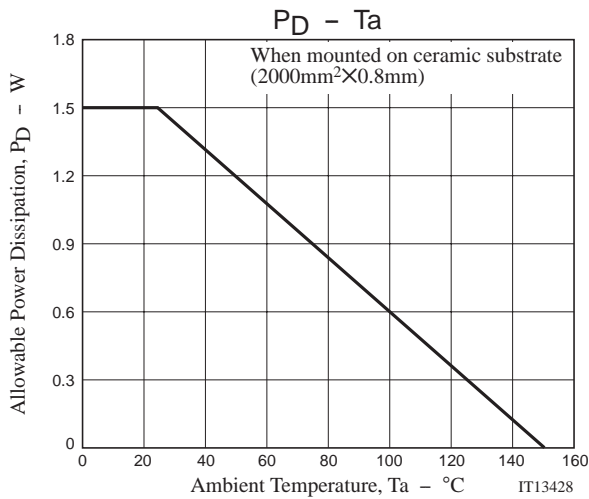
unit : mm (typ)
7022A-009



Switching Time Test Circuit







Note on usage : Since the MCH6440 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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