

DATA SHEET



N-Channel Silicon MOSFET 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	VDSS		60	V
Gate-to-Source Voltage	VGSS		±10	V
Drain Current (DC)	١D		200	mA
Drain Current (Pulse)	IDP	PW≤10μs, duty cycle≤1%	800	mA
Allowable Power Dissipation	PD	Mounted on a ceramic board (1200mm ² ×0.8mm)	1.2	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol Conditions	Ratings			Unit	
		Conditions	min	typ	max	Unit
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	60			V
Zero-Gate Voltage Drain Current	IDSS	V _{DS} =60V, V _{GS} =0V			1	μΑ
Gate-to-Source Leakage Current	IGSS	V _{GS=±} 8V, V _{DS} =0V			±10	μΑ
Cutoff Voltage	VGS(off)	VDS=10V, ID=100µA	0.4		1.3	V
Forward Transfer Admittance	yfs	V _{DS} =10V, I _D =100mA	280	480		mS
Static Drain-to-Source On-State Resistance	R _{DS} (on)1	ID=100mA, VGS=4V		2.2	2.9	Ω
	RDS(on)2	ID=50mA, VGS=2.5V		2.4	3.4	Ω
	R _{DS} (on)3	ID=10mA, VGS=1.8V		3.5	7.0	Ω
Input Capacitance	Ciss	V _{DS} =20V, f=1MHz		26		pF
Output Capacitance	Coss	V _{DS} =20V, f=1MHz		5.9		pF
Reverse Transfer Capacitance	Crss	V _{DS} =20V, f=1MHz		3.2		pF

Marking : ZM

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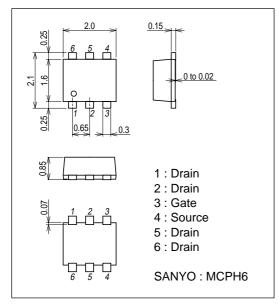
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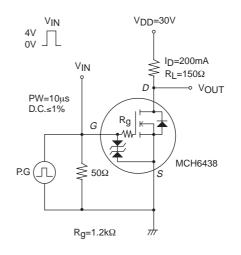
Parameter	Symbol	Conditions		Ratings		
	Symbol		min	typ	max	Unit
Turn-ON Delay Time	td(on)	See specified Test Circuit.		18.5		ns
Rise Time	tr	See specified Test Circuit.		26		ns
Turn-OFF Delay Time	td(off)	See specified Test Circuit.		146		ns
Fall Time	tf	See specified Test Circuit.		69		ns
Total Gate Charge	Qg	V _{DS} =30V, V _{GS} =4V, I _D =200mA		1.0		nC
Gate-to-Source Charge	Qgs	VDS=30V, VGS=4V, ID=200mA		0.20		nC
Gate-to-Drain "Miller" Charge	Qgd	V _{DS} =30V, V _{GS} =4V, I _D =200mA		0.20		nC
Diode Forward Voltage	VSD	I _S =200mA, V _{GS} =0V		0.83	1.2	V

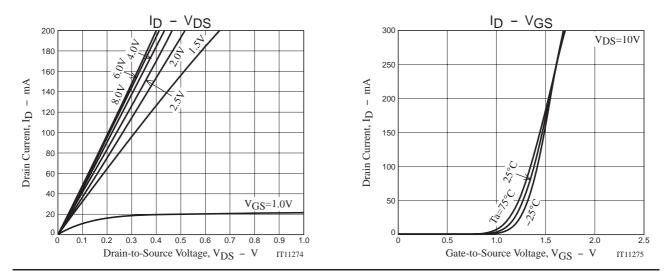
Package Dimensions

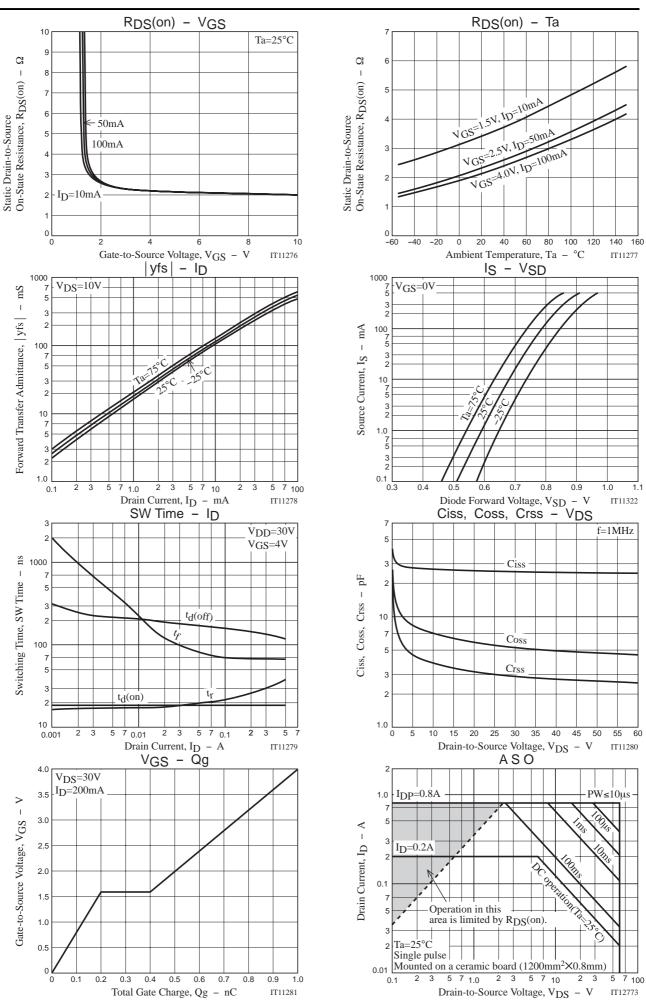
unit : mm (typ) 7022A-009



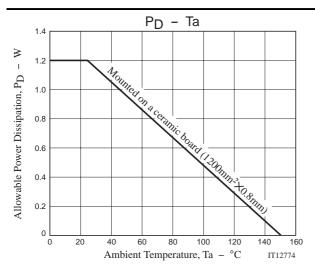
Switching Time Test Circuit







No. A0889-3/4



Note on usage : Since the MCH6438 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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