



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

P-Channel Silicon MOSFET

## MCH3383 — Low Voltage Drive Switching Device Applications

### Features

- ON-resistance  $R_{DS(on)1}=57m\Omega$  (typ.)
- 0.9V drive
- Halogen free compliance

### Specifications

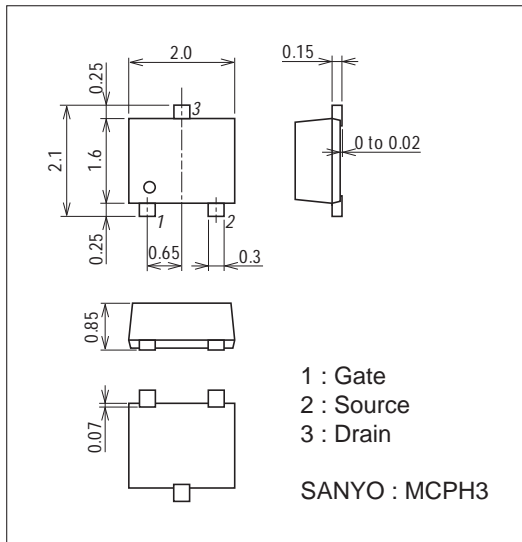
Absolute Maximum Ratings at  $T_a=25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		-12	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 5$	V
Drain Current (DC)	$I_D$		-3.5	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu s$ , duty cycle $\leq 1\%$	-14	A
Allowable Power Dissipation	$P_D$	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm)	1.0	W
Channel Temperature	$T_{ch}$		150	°C
Operating Temperature	$T_{opr}$		-5 to +150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

### Package Dimensions

unit : mm (typ)

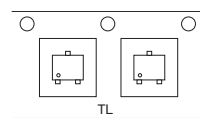
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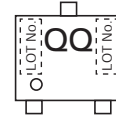
### Product & Package Information

- Package : MCPH3
- JEITA, JEDEC : SC-70, SOT-323
- Minimum Packing Quantity : 3,000 pcs./reel

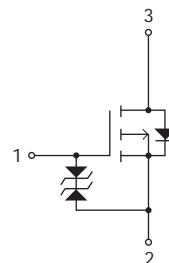
### Packing Type : TL



### Marking



### Electrical Connection

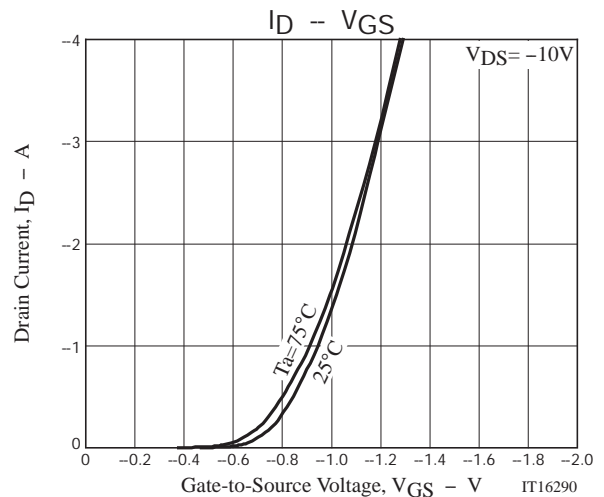
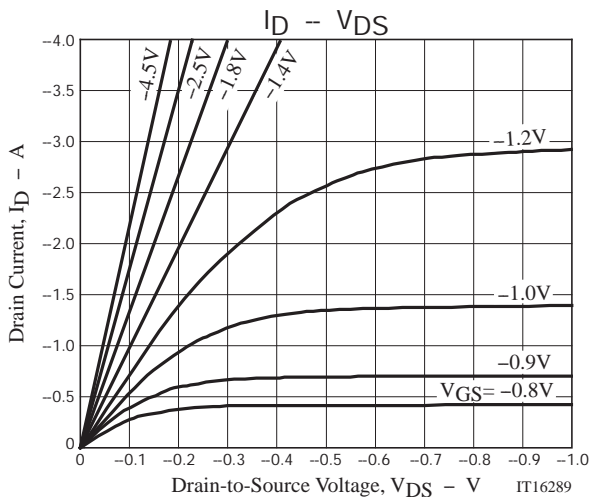
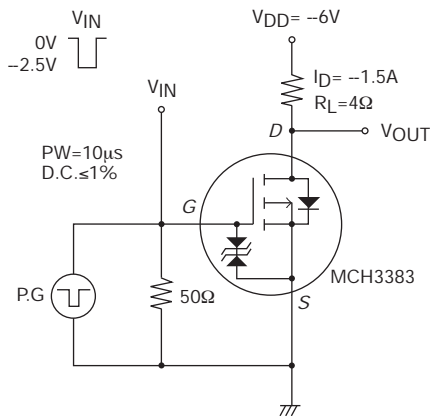


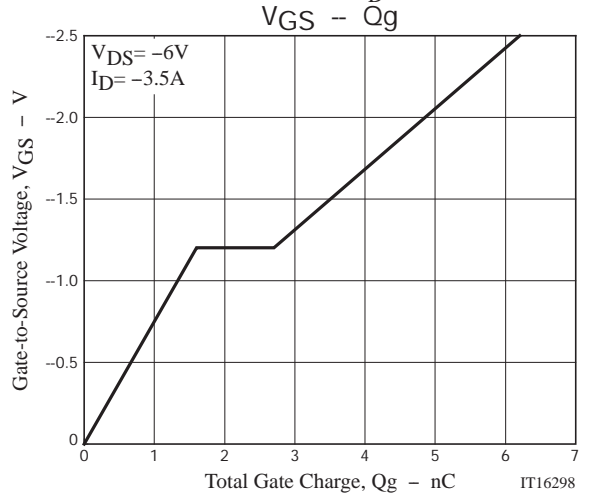
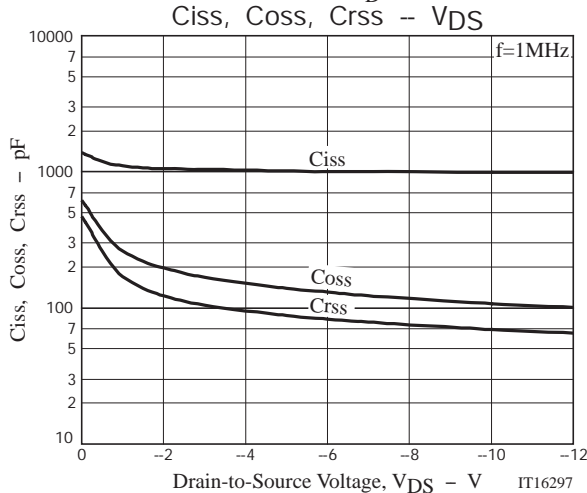
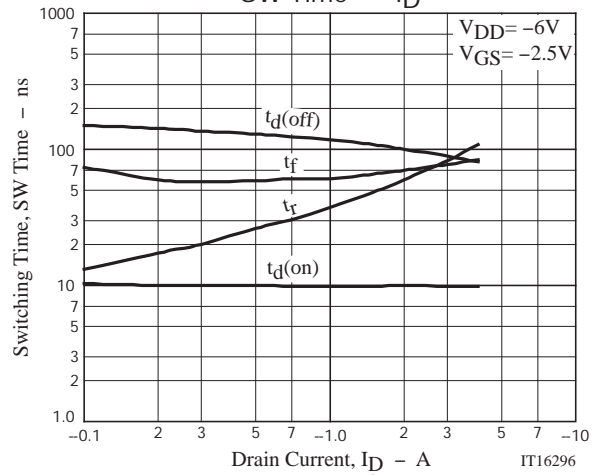
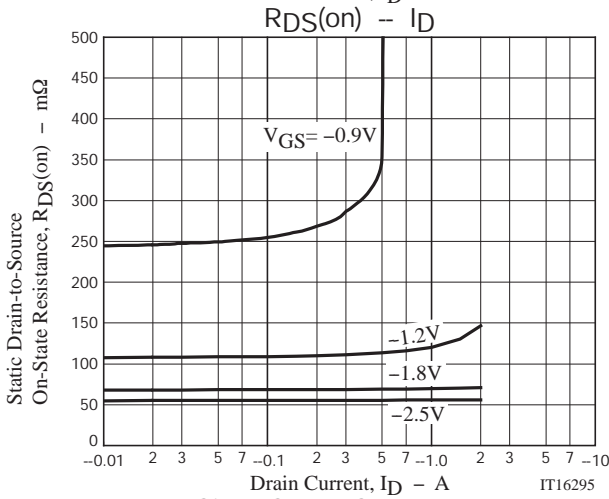
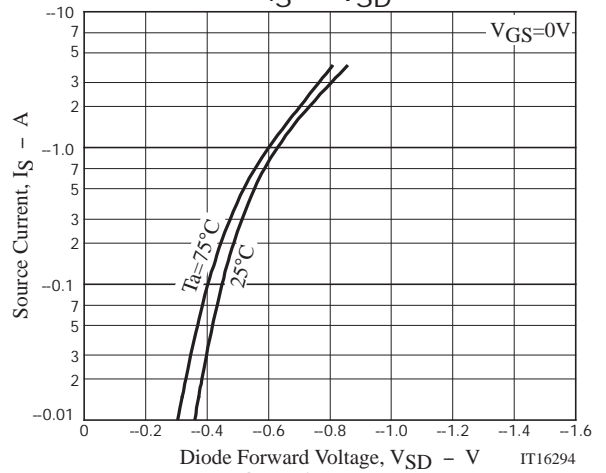
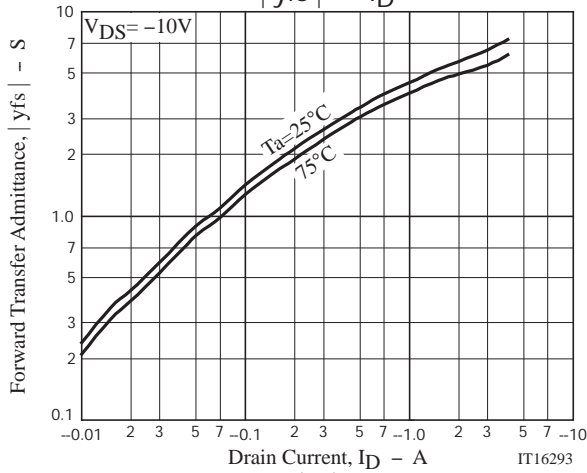
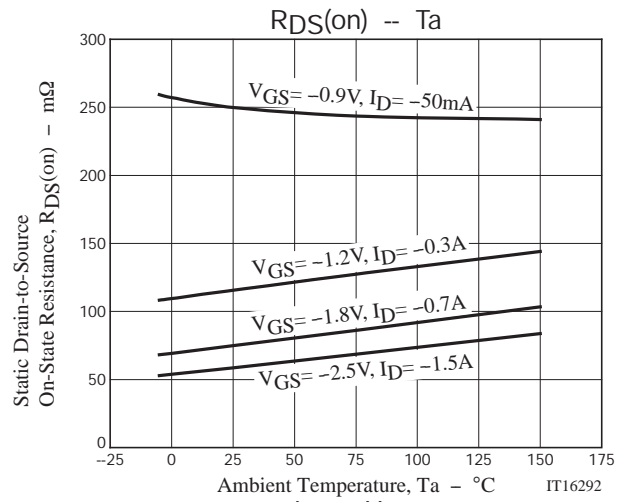
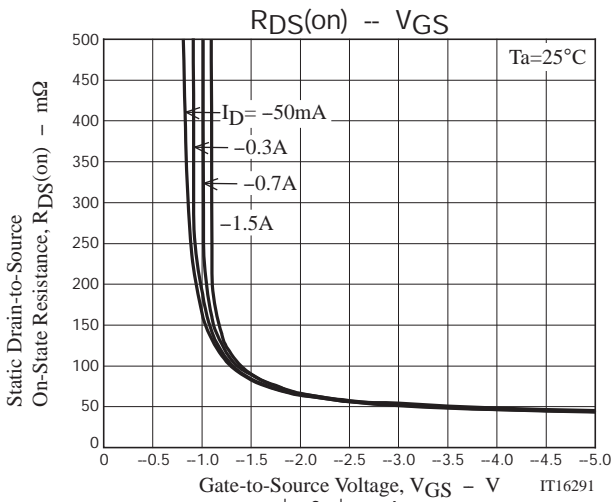
# MCH3383

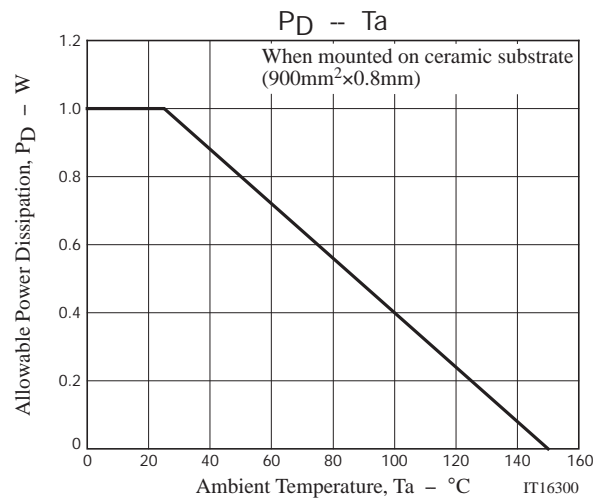
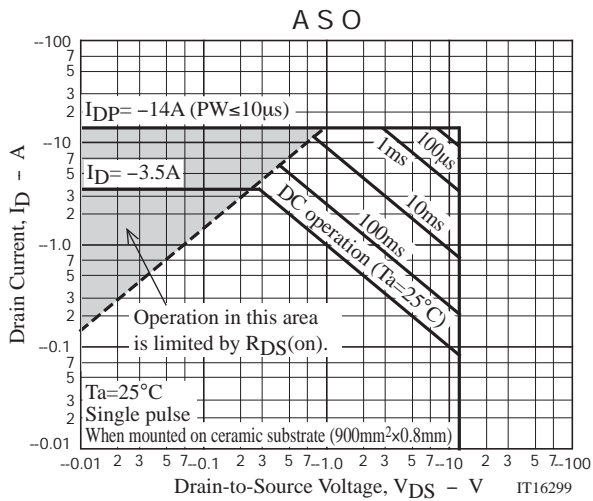
## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1\text{mA}, V_{GS} = 0\text{V}$	-12			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -12\text{V}, V_{GS} = 0\text{V}$			-10	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 4\text{V}, V_{DS} = 0\text{V}$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -6\text{V}, I_D = -1\text{mA}$	-0.3		-0.8	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -6\text{V}, I_D = -1.5\text{A}$		5.3		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -1.5\text{A}, V_{GS} = -2.5\text{V}$		57	69	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D = -0.7\text{A}, V_{GS} = -1.8\text{V}$		75	98	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D = -0.3\text{A}, V_{GS} = -1.2\text{V}$		115	173	$\text{m}\Omega$
	$R_{DS(on)4}$	$I_D = -50\text{mA}, V_{GS} = -0.9\text{V}$		250	500	$\text{m}\Omega$
Input Capacitance	$C_{iss}$	$V_{DS} = -6\text{V}, f = 1\text{MHz}$		1010		pF
Output Capacitance	$C_{oss}$	$V_{DS} = -6\text{V}, f = 1\text{MHz}$		130		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS} = -6\text{V}, f = 1\text{MHz}$		85		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		9.9		ns
Rise Time	$t_r$	See specified Test Circuit.		49		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		109		ns
Fall Time	$t_f$	See specified Test Circuit.		65		ns
Total Gate Charge	$Q_g$	$V_{DS} = -6\text{V}, V_{GS} = -2.5\text{V}, I_D = -3.5\text{A}$		6.2		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS} = -6\text{V}, V_{GS} = -2.5\text{V}, I_D = -3.5\text{A}$		1.6		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS} = -6\text{V}, V_{GS} = -2.5\text{V}, I_D = -3.5\text{A}$		1.1		nC
Diode Forward Voltage	$V_{SD}$	$I_S = -3.5\text{A}, V_{GS} = 0\text{V}$		-0.83	-1.2	V

## Switching Time Test Circuit







Note on usage : Since the MCH3383 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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