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MCH6351

P-Channel Power MOSFET -12V, -9A, 16.9mΩ, Single MCPH6

Features

- On-resistance $R_{DS(on)} = 14\text{m}\Omega$ (typ.)
- Halogen free compliance
- 1.5V drive
- Protection diode in

Specifications

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

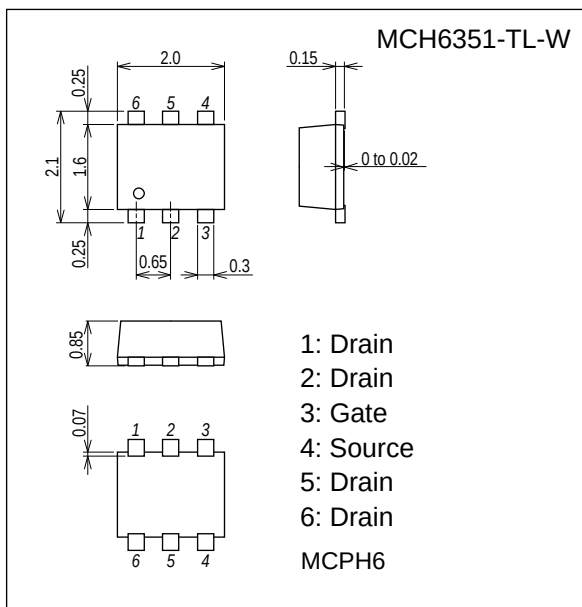
Parameter	Symbol	Conditions	Ratings	Unit
Drain to Source Voltage	V_{DS}		-12	V
Gate to Source Voltage	V_{GS}		± 10	V
Drain Current (DC)	I_D		-9	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	-36	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate ($1500\text{mm}^2 \times 0.8\text{mm}$)	1.5	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Package Dimensions

unit : mm (typ)

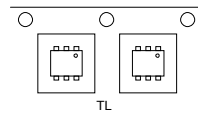
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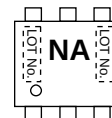
Ordering & Package Information

Device	Package	Shipping	note
MCH6351-TL-W	MCPH6 SC-88, SOT-363	3,000 pcs. / reel	Pb-Free and Halogen Free

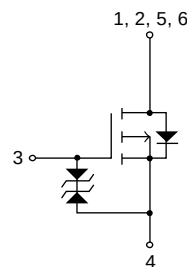
Packing Type: TL



Marking



Electrical Connection

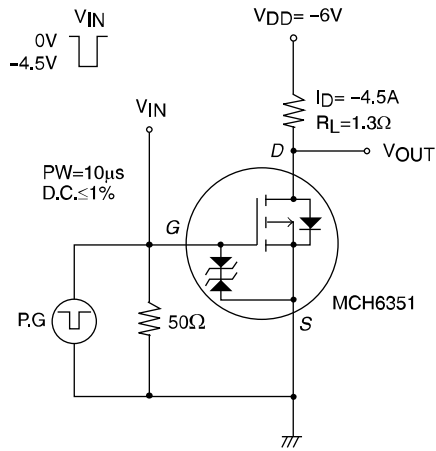


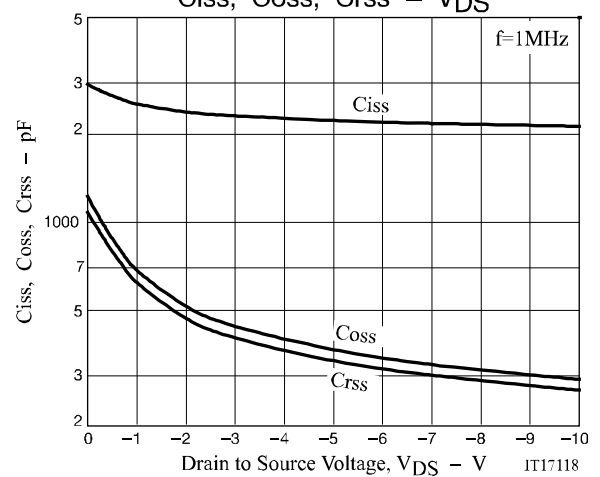
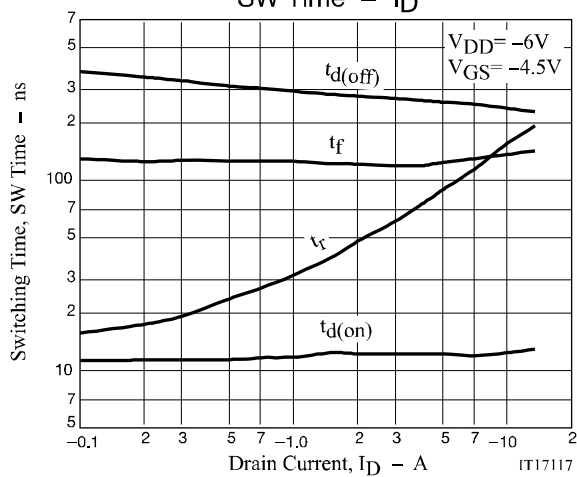
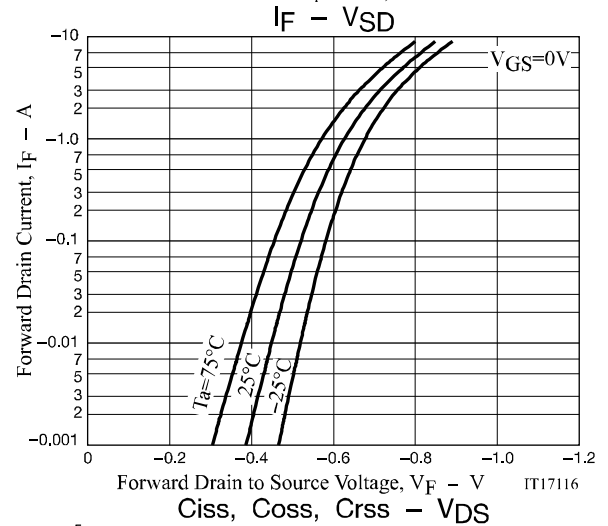
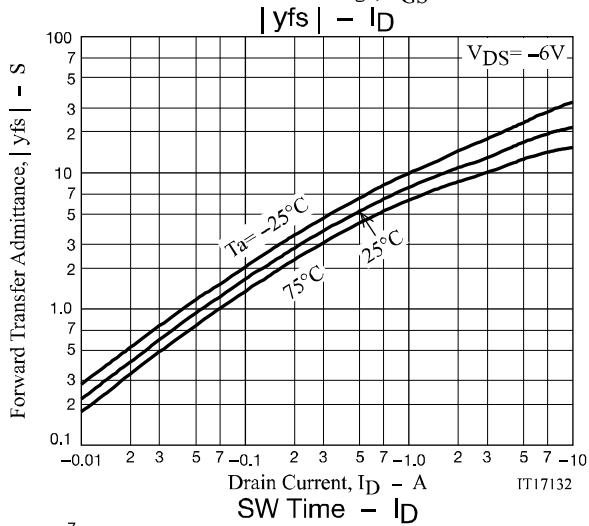
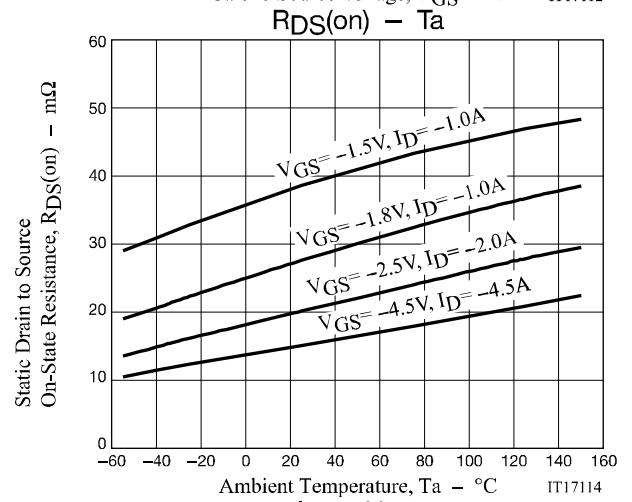
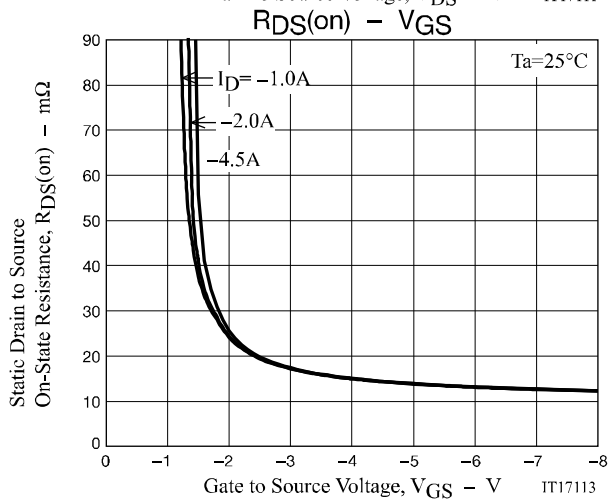
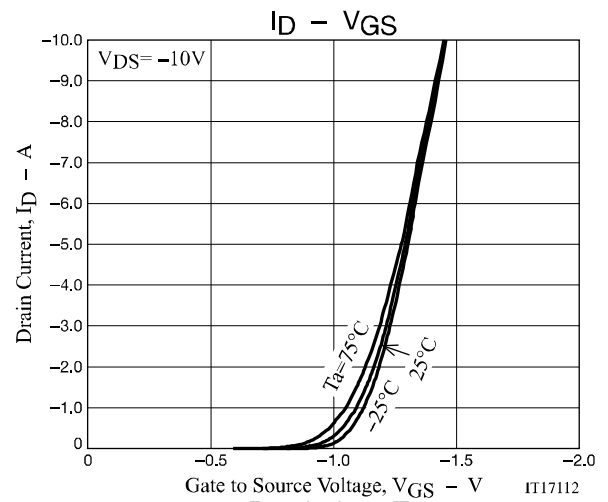
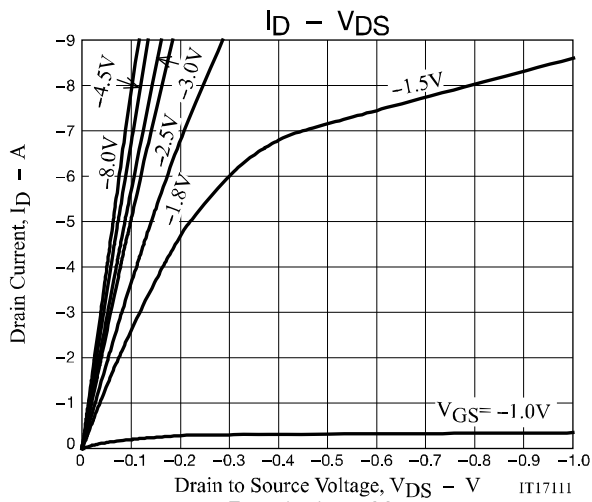
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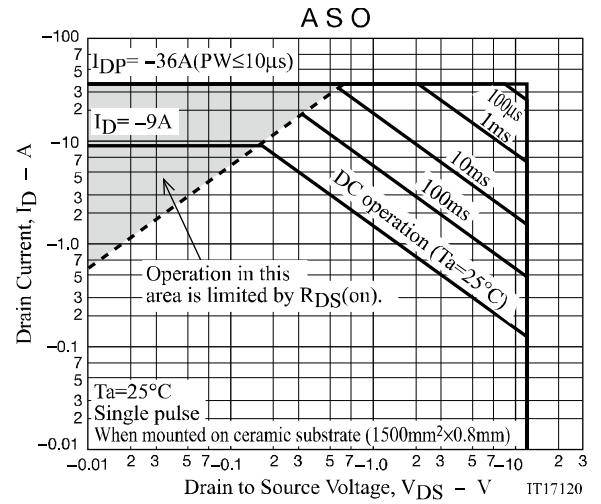
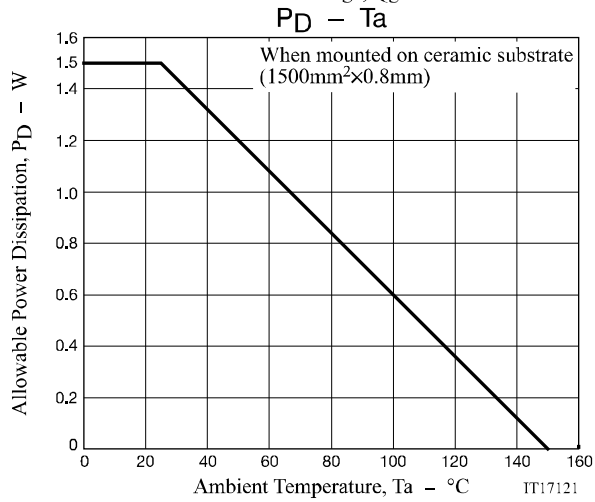
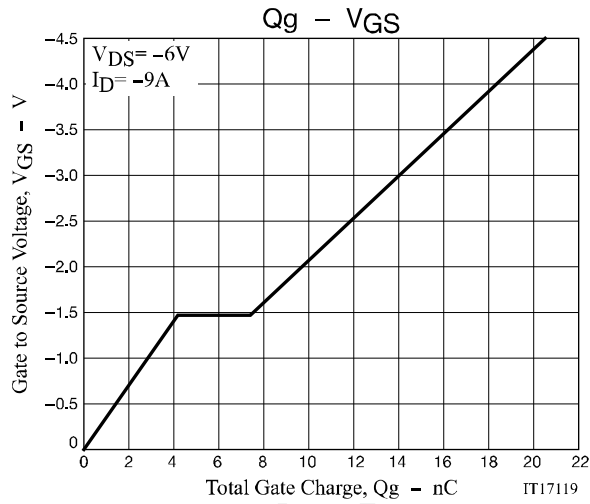
Electrical Characteristics at $T_a = 25^{\circ}\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1\text{mA}$, $V_{GS} = 0\text{V}$	-12			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -12\text{V}$, $V_{GS} = 0\text{V}$			-1	μA
Gate to Source Leakage Current	I_{GSS}	$V_{GS} = \pm 8\text{V}$, $V_{DS} = 0\text{V}$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -6\text{V}$, $I_D = -1\text{mA}$	-0.4		-1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -6\text{V}$, $I_D = -4.5\text{A}$		16.5		S
Static Drain to Source On-State Resistance	$R_{DS(on)1}$	$I_D = -4.5\text{A}$, $V_{GS} = -4.5\text{V}$		14	16.9	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D = -2.0\text{A}$, $V_{GS} = -2.5\text{V}$		19	24	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D = -1.0\text{A}$, $V_{GS} = -1.8\text{V}$		28	40	$\text{m}\Omega$
	$R_{DS(on)4}$	$I_D = -1.0\text{A}$, $V_{GS} = -1.5\text{V}$		37	74	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS} = -6\text{V}$, $f = 1\text{MHz}$		2200		pF
Output Capacitance	C_{oss}			350		pF
Reverse Transfer Capacitance	C_{rss}			320		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		12.3		ns
Rise Time	t_r			89		ns
Turn-OFF Delay Time	$t_d(off)$			260		ns
Fall Time	t_f			122		ns
Total Gate Charge	Q_g	$V_{DS} = -6\text{V}$, $V_{GS} = -4.5\text{V}$, $I_D = -9\text{A}$		20.5		nC
Gate to Source Charge	Q_{gs}			4.2		nC
Gate to Drain "Miller" Charge	Q_{gd}			3.2		nC
Diode Forward Voltage	V_{SD}	$I_S = -9\text{A}$, $V_{GS} = 0\text{V}$		-0.83	-1.2	V

Switching Time Test Circuit



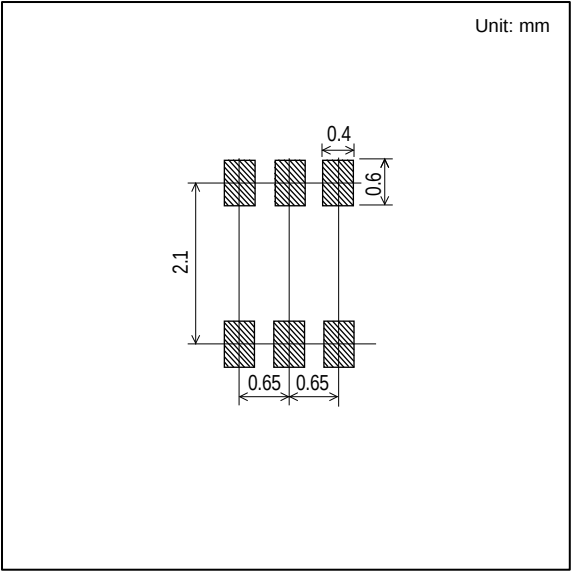
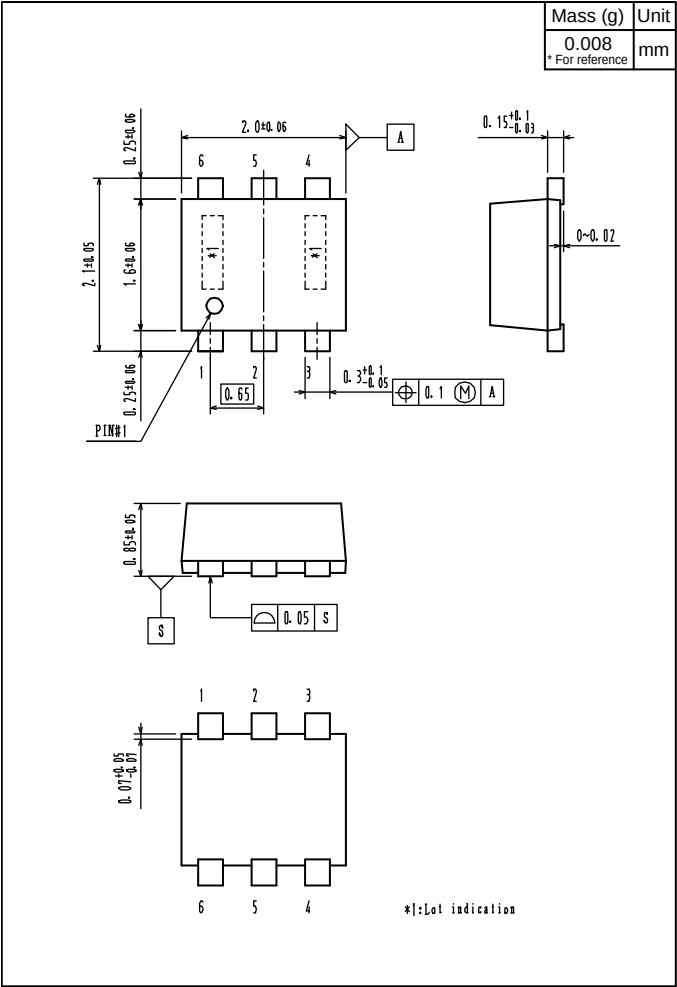




Outline Drawing

MCH6351-TL-W

Land Pattern Example



Note on usage : Since the MCH6351 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург,
Промышленная ул, дом № 19, литера Н,
помещение 100-Н Офис 331