



# MCH6351

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

**ON Semiconductor®**
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### 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  $T_a = 25^\circ\text{C}$ 

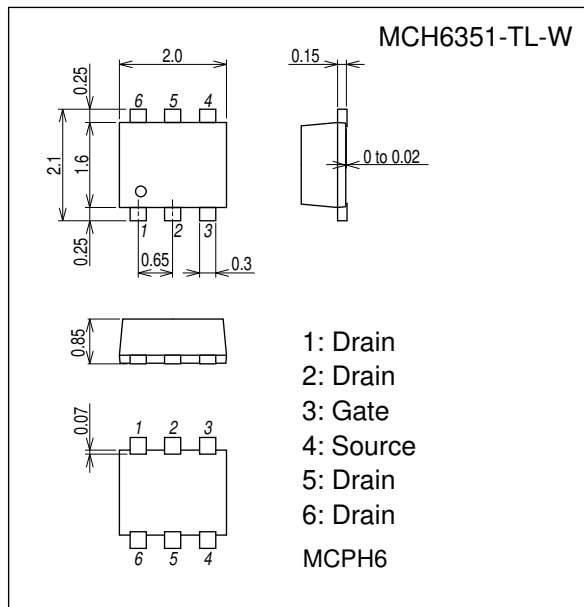
Parameter	Symbol	Conditions	Ratings	Unit
Drain to Source Voltage	$V_{DS}$		-12	V
Gate to Source Voltage	$V_{GS}$		$\pm 10$	V
Drain Current (DC)	$I_D$		-9	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	-36	A
Allowable Power Dissipation	$P_D$	When mounted on ceramic substrate ( $1500\text{mm}^2 \times 0.8\text{mm}$ )	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)

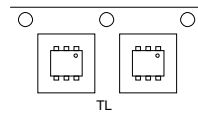
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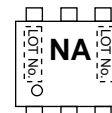
### Ordering & Package Information

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

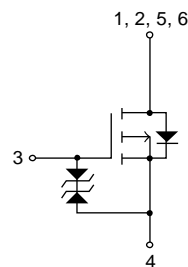
### Packing Type: TL



### Marking



### Electrical Connection

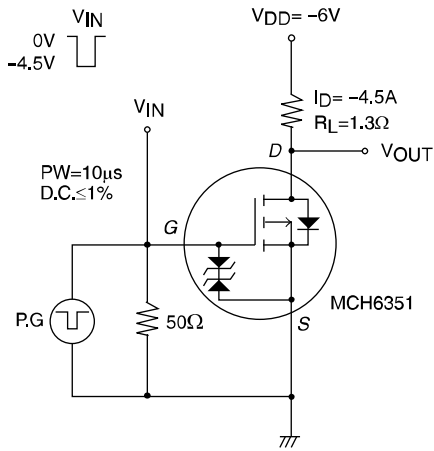


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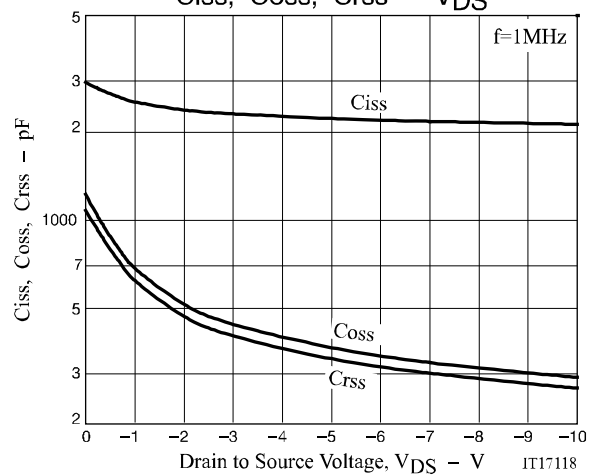
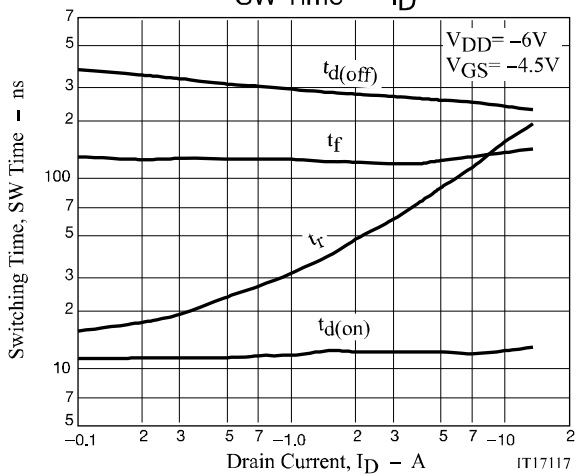
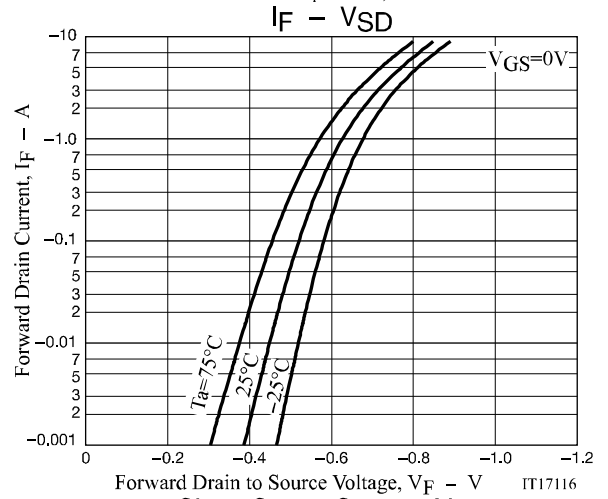
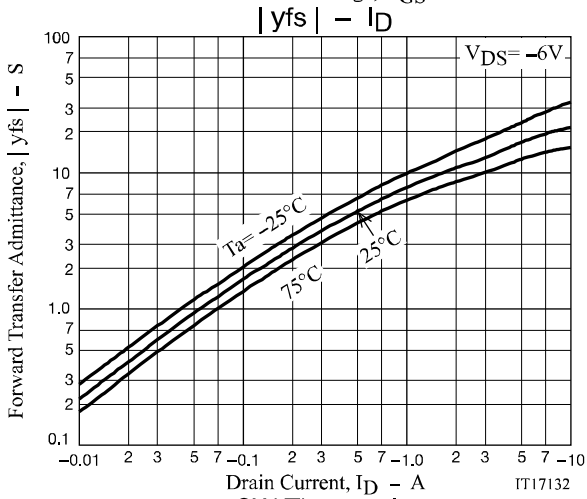
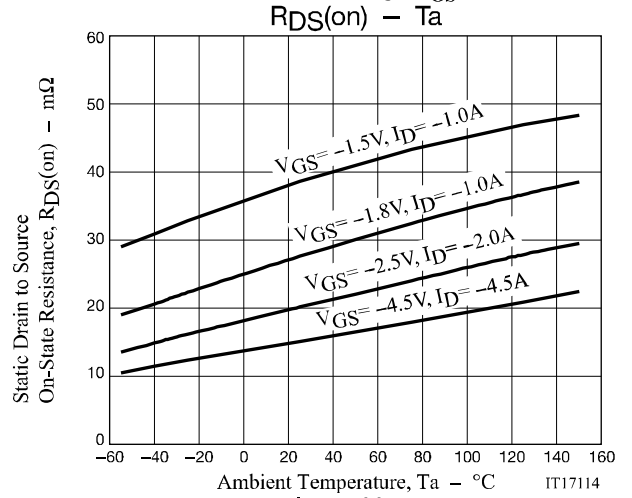
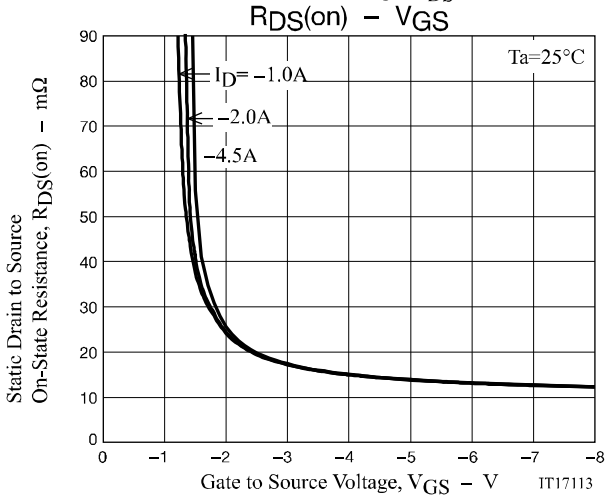
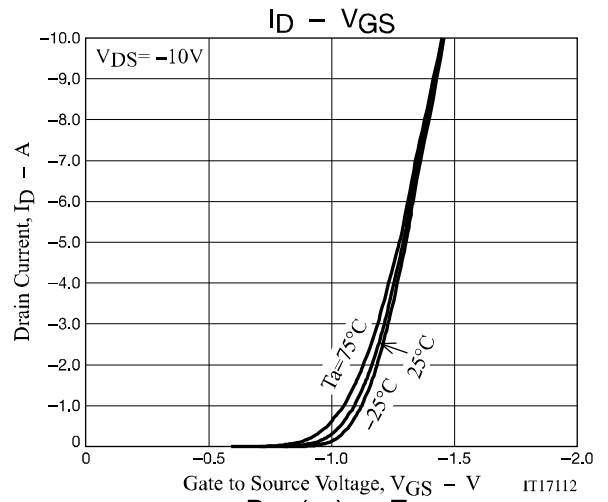
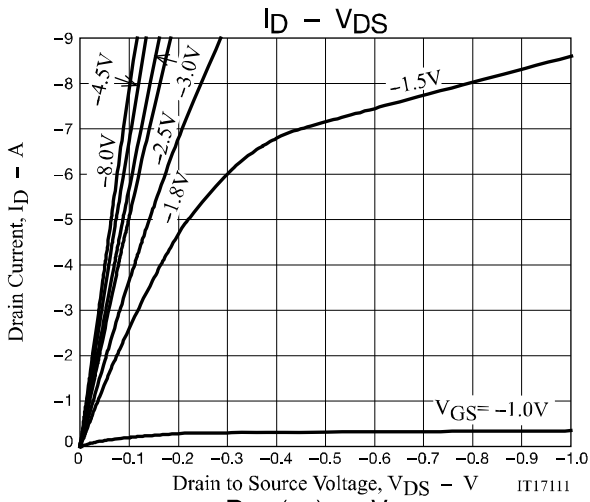
## Electrical Characteristics at Ta = 25°C

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	$I_{DSS}$	$V_{DS} = -12\text{V}, V_{GS} = 0\text{V}$			-1	$\mu\text{A}$
Gate to Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 8\text{V}, V_{DS} = 0\text{V}$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -6\text{V}, I_D = -1\text{mA}$	-0.4		-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		$\text{pF}$
Output Capacitance	$C_{oss}$			350		$\text{pF}$
Reverse Transfer Capacitance	$C_{rss}$			320		$\text{pF}$
Turn-ON Delay Time	$t_d(on)$		See specified Test Circuit.		12.3	
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	
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

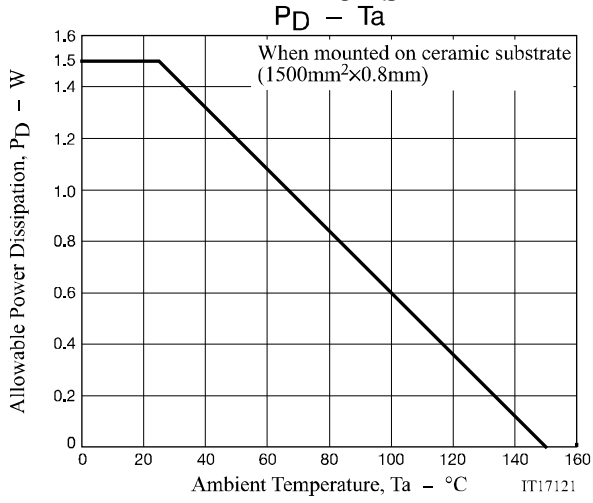
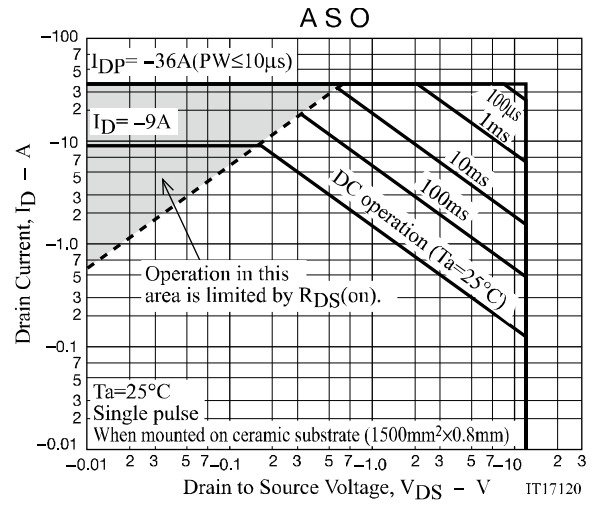
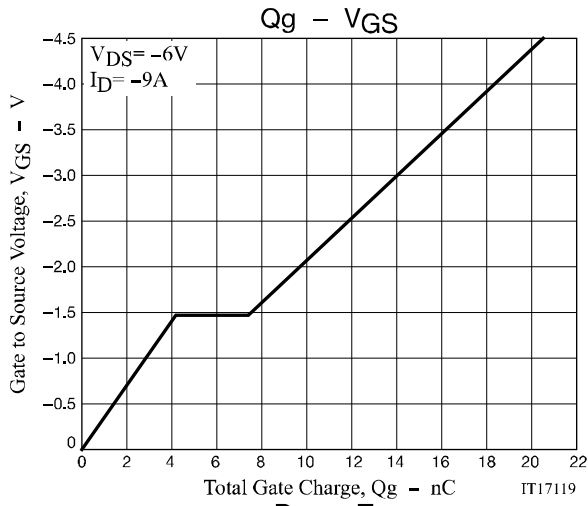
## Switching Time Test Circuit



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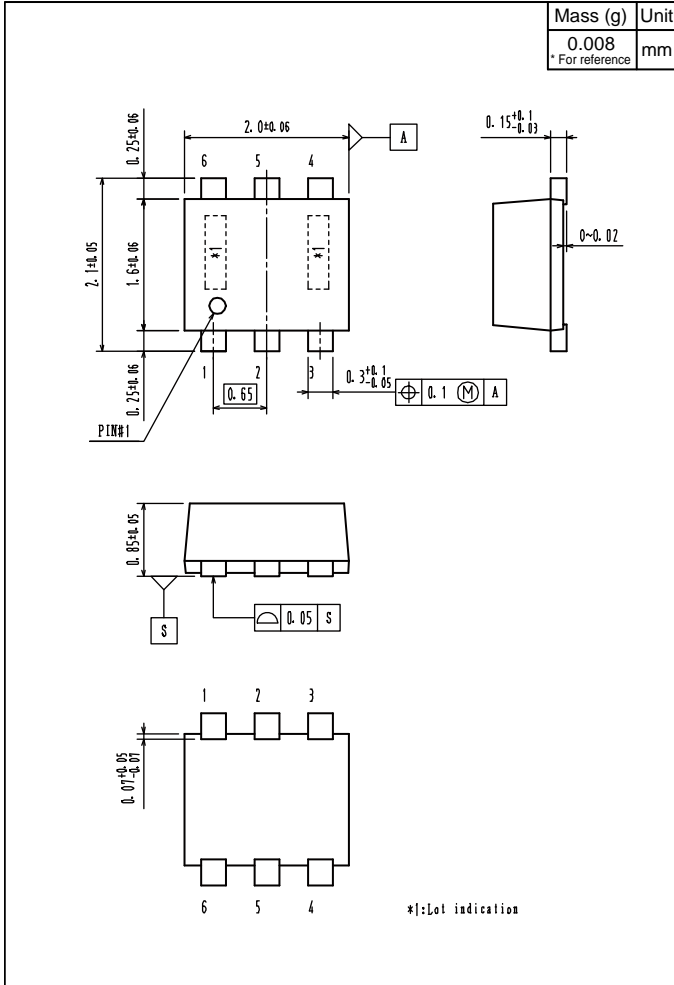
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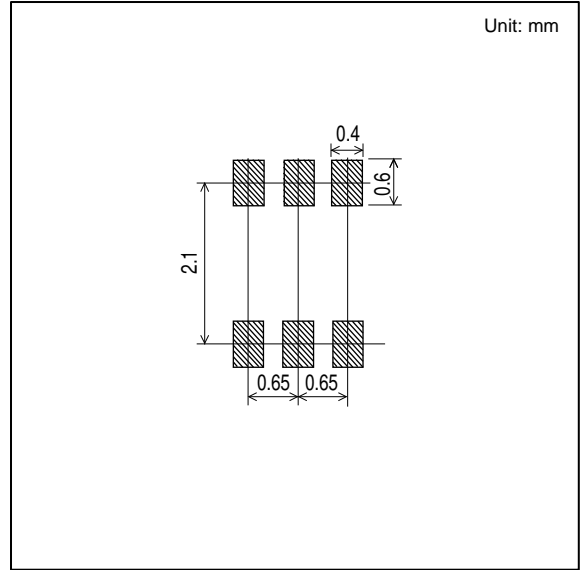
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## Outline Drawing

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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