



MCH3333A

P-Channel Power MOSFET -30V, -2.0A, 215mΩ, Single MCPH3

ON Semiconductor®

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Features

- 1.8V drive
- Halogen free compliance
- Protection diode in

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain to Source Voltage	V_{DSS}		-30	V
Gate to Source Voltage	V_{GSS}		± 10	V
Drain Current (DC)	I_D		-2.0	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	-8.0	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (1000mm ² ×0.8mm)	0.9	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.

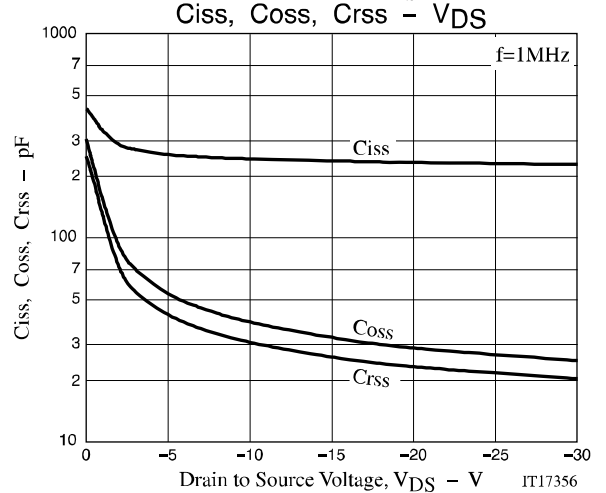
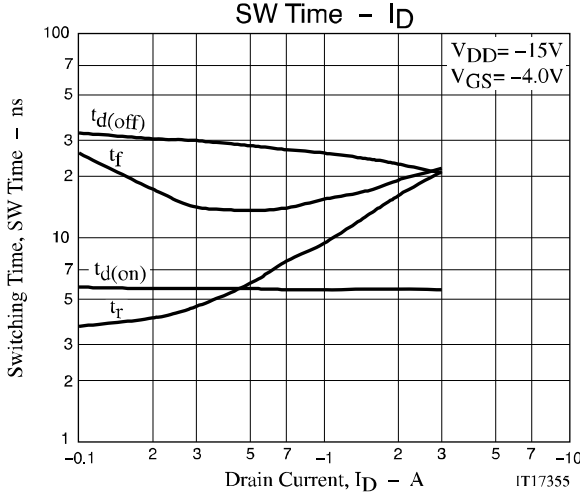
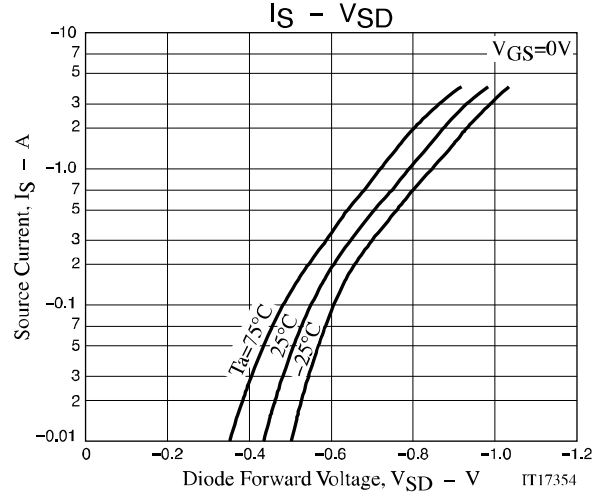
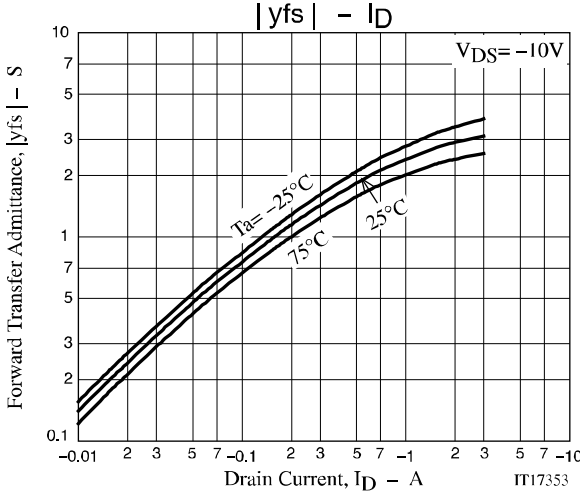
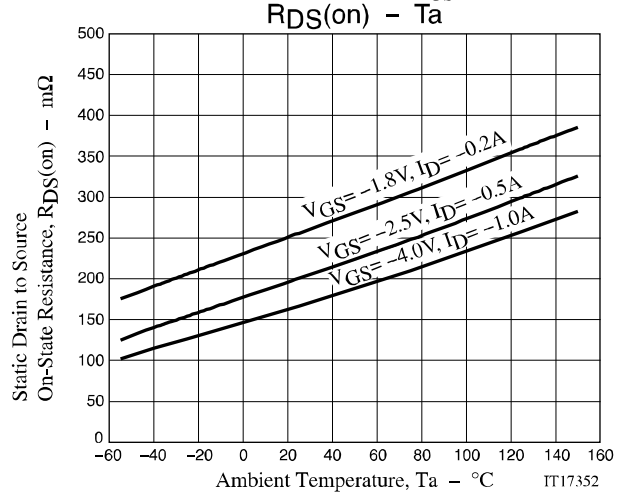
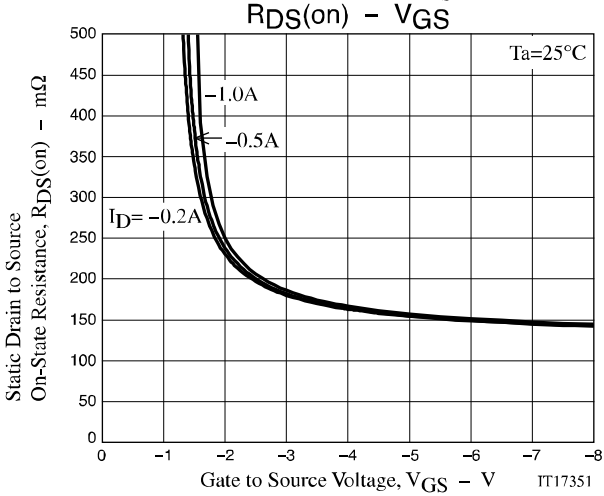
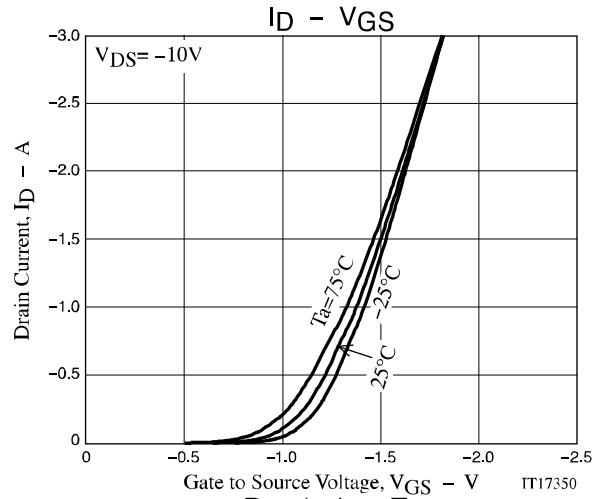
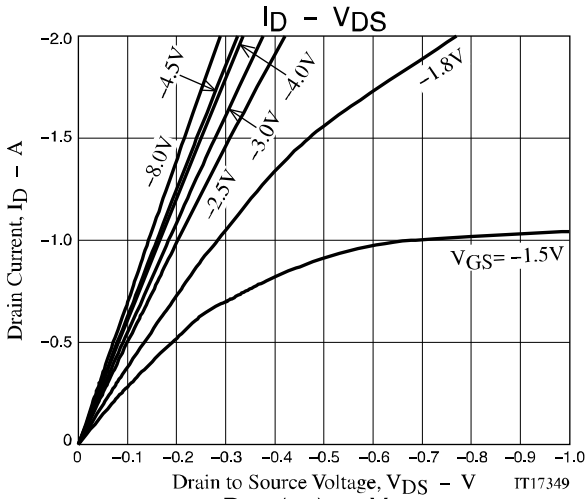
Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1\text{mA}$, $V_{GS} = 0\text{V}$	-30			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -30\text{V}$, $V_{GS} = 0\text{V}$			-1	μA
Gate to Source Leakage Current	I_{GSS}	$V_{GS} = \pm 8\text{V}$, $V_{DS} = 0\text{V}$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -10\text{V}$, $I_D = -1\text{mA}$	-0.4		-1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10\text{V}$, $I_D = -1.0\text{A}$		2.5		S
Static Drain to Source On-State Resistance	$R_{DS(on)1}$	$I_D = -1.0\text{A}$, $V_{GS} = -4\text{V}$		165	215	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D = -0.5\text{A}$, $V_{GS} = -2.5\text{V}$		200	280	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D = -0.2\text{A}$, $V_{GS} = -1.8\text{V}$		270	430	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS} = -10\text{V}$, $f = 1\text{MHz}$		240		pF
Output Capacitance	C_{oss}			39		pF
Reverse Transfer Capacitance	C_{rss}			31		pF
Turn-ON Delay Time	$t_d(on)$		See specified Test Circuit.		5.7	
Rise Time	t_r			9.7		ns
Turn-OFF Delay Time	$t_d(off)$			27		ns
Fall Time	t_f			16		ns
Total Gate Charge	Q_g	$V_{DS} = -15\text{V}$, $V_{GS} = -4\text{V}$, $I_D = -2.0\text{A}$			2.8	
Gate to Source Charge	Q_{gs}			0.3		nC
Gate to Drain "Miller" Charge	Q_{gd}			0.95		nC
Diode Forward Voltage	V_{SD}	$I_S = -2.0\text{A}$, $V_{GS} = 0\text{V}$		-0.87	-1.5	V

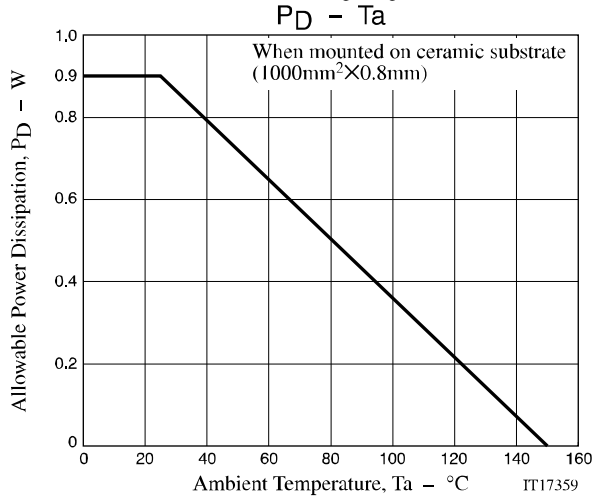
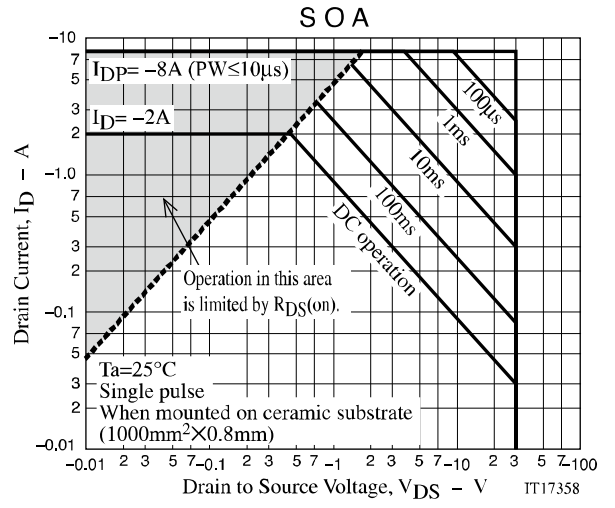
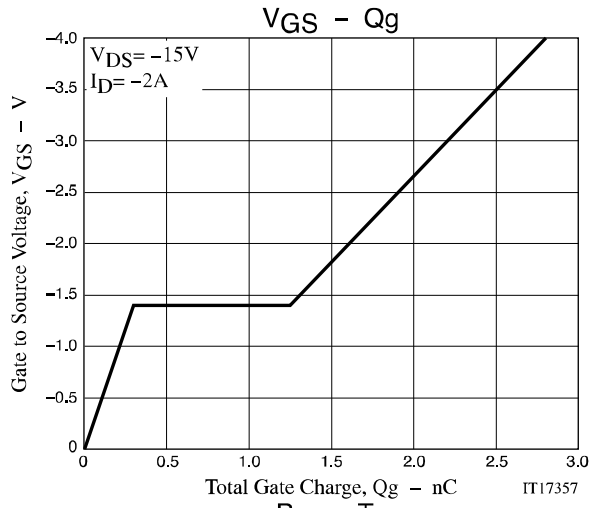
ORDERING INFORMATION

See detailed ordering and shipping information on page 4 of this data sheet.

MCH3333A



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Package Dimensions

MCH3333A-TL-H

SC-70FL/MCPH3

CASE 419AQ

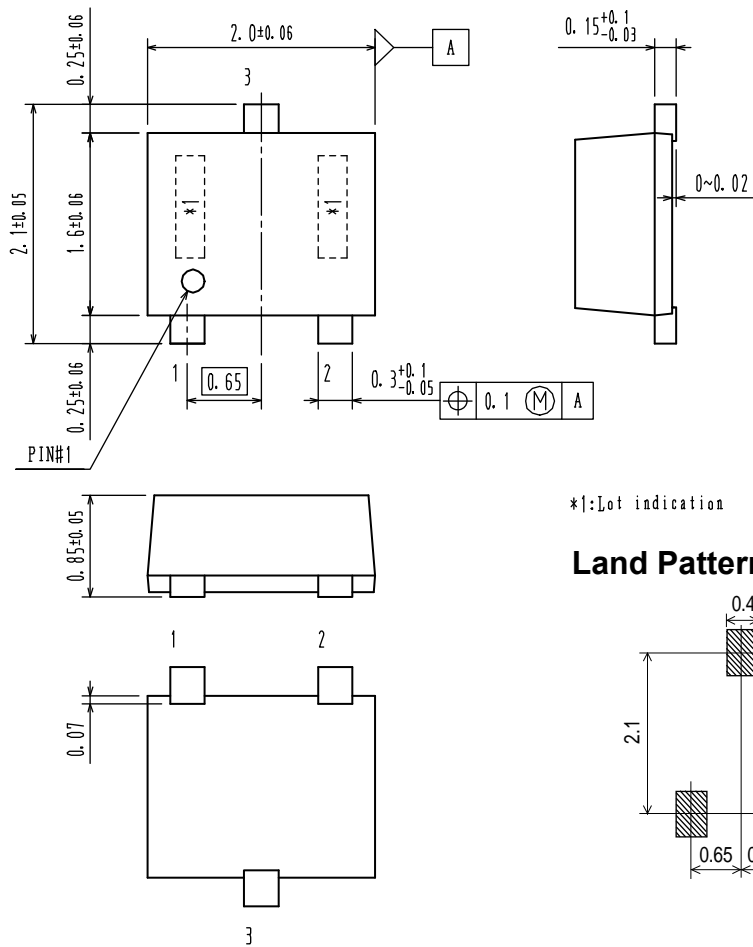
ISSUE O

unit : mm

1: Gate

2: Source

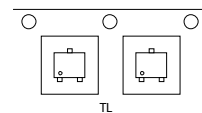
3: Drain



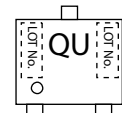
Ordering & Package Information

Device	Package	Shipping	note
MCH3333A-TL-H	MCPH3 SC-70,SOT-323	3,000 pcs. / reel	Pb-Free and Halogen Free

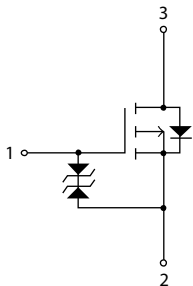
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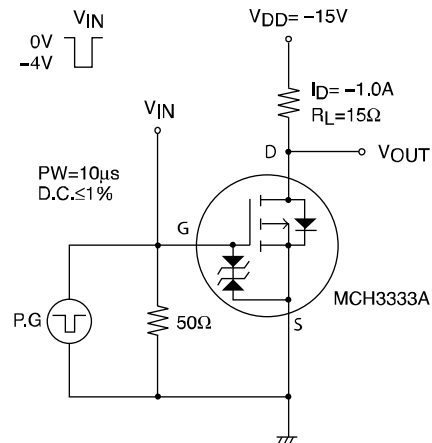
Marking



Electrical Connection



Switching Time Test Circuit



Note on usage : Since the MCH3333A is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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