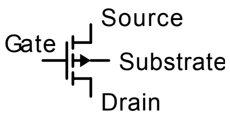
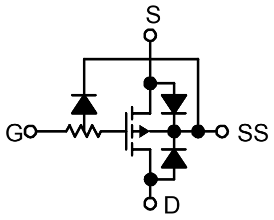
Schematic Symbol

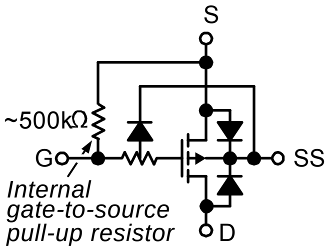
Functional Diagrams



Schematic Symbol



MIC94030



MIC94031

Absolute Maximum Ratings(1)

Voltage and current values are negative. Signs not shown for clarity.

Drain-to-Source Voltage (pulse)....................................16V
Gate-to-Source Voltage (pulse). 16V
Continuous Drain Current
T_A = 25°C..1A
T_A = 100°C...0.5A
Operating Junction Temperature ....–55°C to +150°C
Storage Temperature ....–55°C to +150°C

Total Power Dissipation
T_A = 25°C..568mW
T_A = 100°C..227mW
Thermal Resistance
θ_{JA}...220°C/W
θ_{JC}...130°C/W
Lead Temperature
1/16” from case, 10s...+300°C

Electrical Characteristics

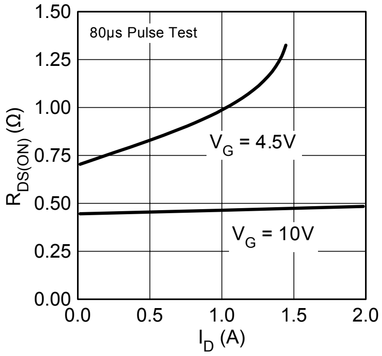
Voltage and current values are negative. Signs not shown for clarity.

Symbol	Parameter	Condition (Note 1)	Min	Typ	Max	Units
V_{BDSS}	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250µA	13.5			V
V_{GS}	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250µA	0.6	1.0	1.4	V
I_{GSS}	Gate-Body Leakage	V_{DS} = 0V, V_{GS} = 12V, **Note 2, Note 3**			1	µA
R_{GS}	Gate-Source Resistor	V_{DS} = 0V, V_{GS} = 12V, **Note 2, Note 4**	500	750	1000	kΩ
C_{ISS}	Input Capacitance	V_{GS} = 0V, V_{DS} = 12V		100		pF
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 12V, V_{GS} = 0V			25	µA
		V_{DS} = 12V, V_{GS} = 0V, T_J = 125°C		0.010	250	µA
$I_{D(ON)}$	On-State Drain Current	V_{DS} = 10V, V_{GS} = 10V, **Note 5**		6.3		A
$R_{DS(ON)}$	Drain-Source On-State Resist	V_{GS} = 10V, I_D = 100mA V_{GS} = 4.5V, I_D = 100mA V_{GS} = 2.7V, I_D = 100mA		0.45 0.75 1.20	1.00	Ω Ω Ω
g_{FS}	Forward Transconductance	V_{DS} = 10V, I_D = 200mA, **Note 5**		480		mS

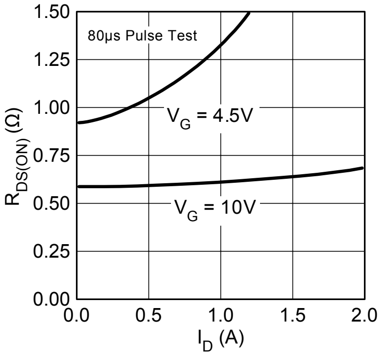
Notes:

1. T_A = 25°C unless noted. Substrate connected to source for all conditions.
2. ESD gate protection diode conducts during positive gate-to-source voltage excursions.
3. MIC94030 only.
4. MIC94031 only.
5. Pulse Test: Pulse Width ≤ 80µsec, Duty Cycle ≤ 0.5%.

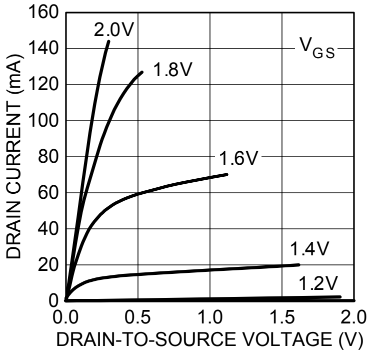
Typical Characteristics



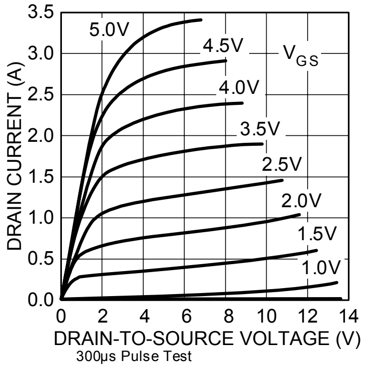
On Resistance vs. Drain Current at 25°C



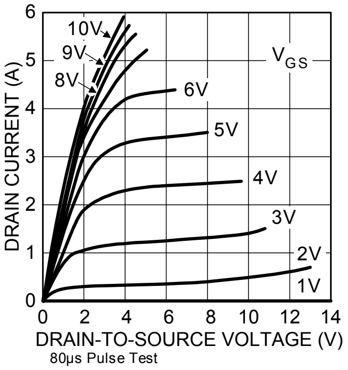
On Resistance vs. Drain Current at 125°C



Drain Characteristics

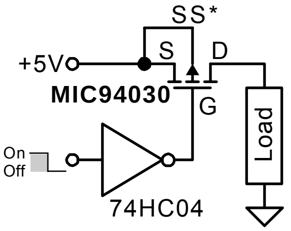


Drain Characteristics



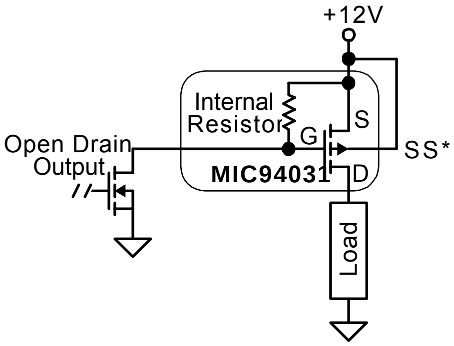
Drain Characteristics

Typical Applications



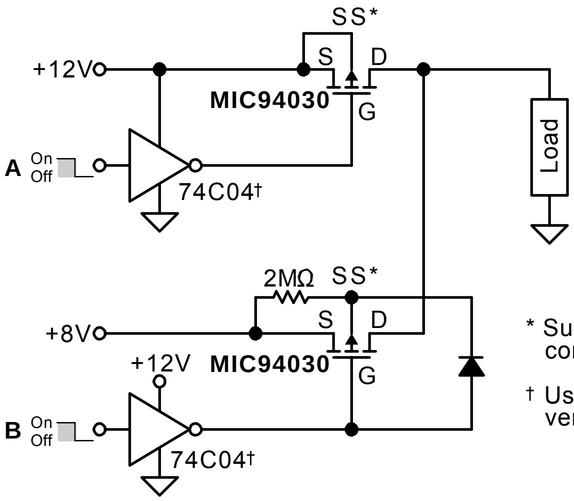
* Substrate must be
connected to sourc

Figure 1. Power Switch Application



* Substrate must be
connected to source

Figure 2. Power Control Application



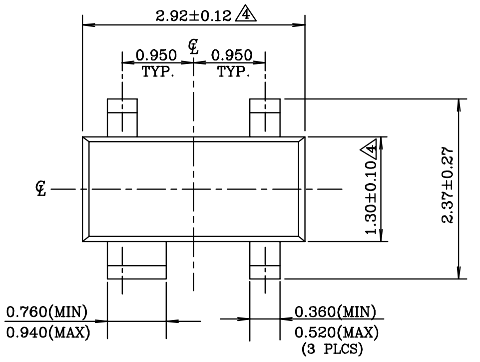
A	B	Output
Off	Off	0V
On	Off	+12V
Off	On	+8V
On	On	*don't!*

* Substrate must be
connected to source

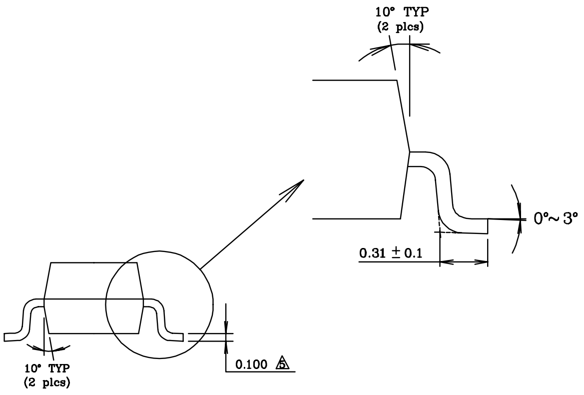
† Use "C" version only. "HC"
versions not rated to 12V

Figure 3. Analog Switch Application

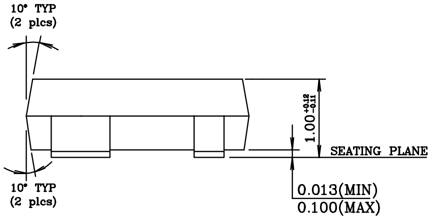
Package Information



TOP VIEW



END VIEW



SIDE VIEW

NOTE:

1. Dimensions and tolerances are as per ANSI Y14.5M, 1982.
2. Package surface to be mirror finish.
3. Die is facing up for mold & trim/form.

△4 Dimension are exclusive of mold flash and gate burr.

△5 Dimension are exclusive of solder plating.

SOT-143 (M4)

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