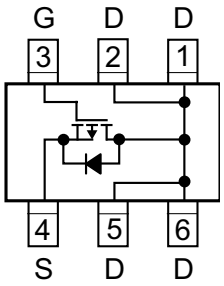
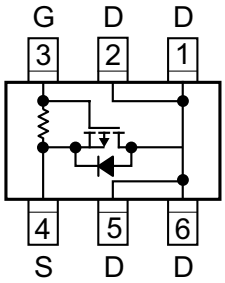
Pin Configuration

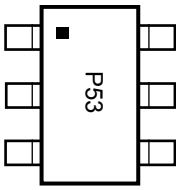


MIC94052
SC-70-6 (C6)

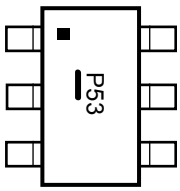


MIC94053
SC-70-6 (C6)

SN - Pb



Pb -Free



Package Marking - Top View

Pin Description

Pin Number	Pin Name	Pin Function
1, 2, 5, 6	D	Drain. Ensure that all drain pins are connected together to optimize $R_{DS(ON)}$ performance.
3	G	Gate
4	S	Source

Absolute Maximum Ratings (Note 1)

Drain-Source Voltage (V_{DS}) ..... –6V
Gate-Source Voltage (V_{GS}) ..... –6V
Continuous Drain Current (ID) **Note 3**
T_A = 25°C ..... ±2A
T_A = 85°C ..... ±1.4A
Pulsed Drain Current (I_{DP}) **Note 3** ..... ±6A
Continous Diode Current (I_S) **Note 7** ..... –50mA
Power Dissipation **Note 3**
SC-70-6 lead (T_A = 85°C) 270mW
Ambient Storage Temperature (T_S) ..... –55°C to +150°C
ESD Rating **Note 4**

Operating Ratings (Note 2)

Input Voltage Range ..... 1.8V to 5.5V
Junction Temperature Range (T_J) ..... –40°C to +150°C
Package Thermal Impedance **Note 3**
θ_{JA} SC-70-6 lead ..... 240°C/W

Electrical Characteristics

T_A = 25°C, unless otherwise specified. **Bold** values indicate –40°C≤T_J≤+150°C.

Symbol	Parameter	Condition	Min	Typ	Max	Units
Static						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = –250µA	–0.5		–1.2	V
I_{GSS}	Gate Body Leakage (MIC94052 only)	V_{DS} = 0V, V_{GS} = –5.5V			100	nA
R_{GS}	Gate-Source Resistance (MIC94053 only)	V_{DS} = 0V, V_{GS} = –5.5V	250	400	550	kΩ
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = –5.5V, V_{GS} = 0V T_J = +85°C			–1 **–5**	µA µA
$R_{DS(ON)}$	Drain-Source On-Resistance **Note 8**	V_{GS} = –4.5V, I_{DS} = –100 mA V_{GS} = –3.6V, I_{DS} = –100 mA V_{GS} = –2.5V, I_{DS} = –100 mA V_{GS} = –1.8V, I_{DS} = –100 mA		70 76 92 125	84 110 130 180	mΩ mΩ mΩ mΩ
Dynamic, Note 6						
$t_{d(on)}$	Turn-On Delay Time	V_{DD} = –5V, I_D = –0.5A, V_{GS} = –4.5V, R_{GEN} = 50Ω		15		ns
t_r	Turn-On Rise Time	V_{DD} = –5V, I_D = –0.5A, V_{GS} = –4.5V, R_{GEN} = 50Ω		15		ns
$t_{d(off)}$	Turn-Off Delay Time	V_{DD} = –5V, I_D = –0.5A, V_{GS} = –4.5V, R_{GEN} = 50Ω		60		ns
t_f	Turn-Off Fall Time	V_{DD} = –5V, I_D = –0.5A, V_{GS} = –4.5V, R_{GEN} = 50Ω		20		ns

Note 1. T_A = 25°C unless otherwise noted. Absolute maximum ratings indicate limits beyond which damage to the component may occur. Electrical specifications do not apply when operating the device outside of its operating ratings.

Note 2. This device is not guaranteed to operate beyond its specified operating rating.

Note 3. Mounted on 1 square-inch pad of 2 oz. copper.

Note 4. IC devices are inherently ESD sensitive. Handling precautions required.

Note 5. Pulse test; pulse width = 300µs, duty cycle = 2%.

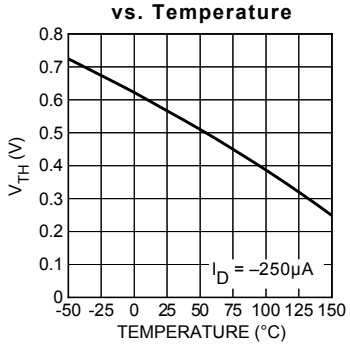
Note 6. Guaranteed by design.

Note 7. Body diode current conduction is not recommended.

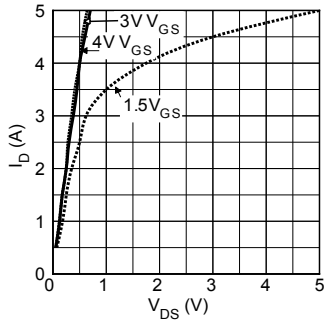
Note 8. Ensure that all drain pins are connected together to optimize $R_{DS(ON)}$ perfomance.

Typical Characteristics

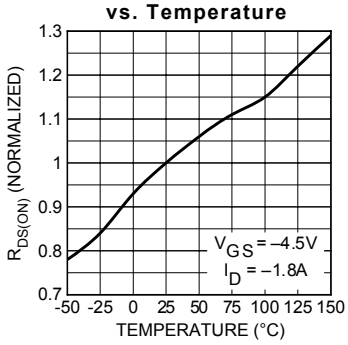
V_{TH} Variance vs. Temperature



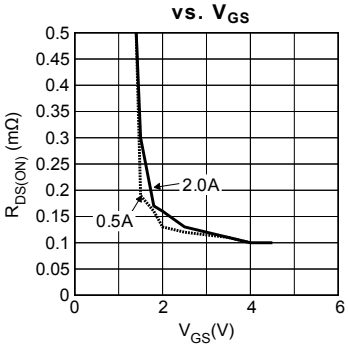
V_{DS} vs. I_D



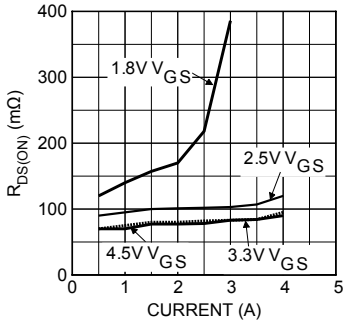
$R_{DS(ON)}$ Variance vs. Temperature



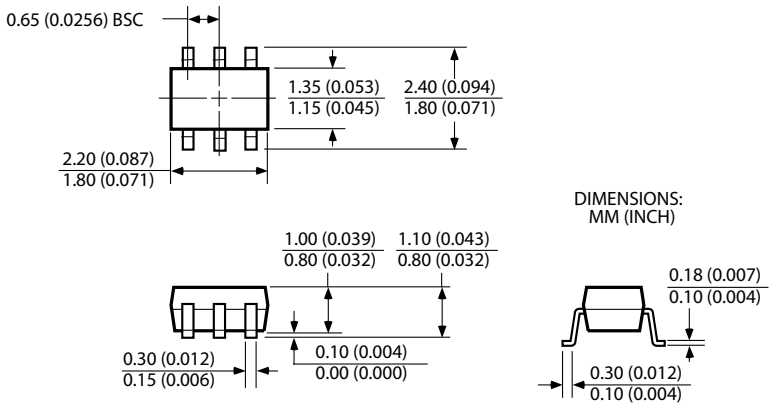
On-Resistance vs. V_{GS}



On-Resistance vs. I_D



Package Information



SC-70-6 Pin (C6)

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