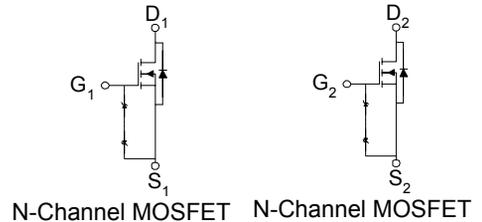
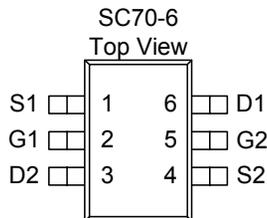


N-Channel 60-V (D-S) MOSFET

These miniature surface mount MOSFETs utilize a high cell density trench process to provide low $r_{DS(on)}$ and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

- Low $r_{DS(on)}$ provides higher efficiency and extends battery life
- Low thermal impedance copper leadframe SC70-6 saves board space
- Fast switching speed
- High performance trench technology

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
60	2.0 @ $V_{GS} = 4.5V$	0.32
	3.0 @ $V_{GS} = 2.5V$	0.26



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ UNLESS OTHERWISE NOTED)			
Parameter	Symbol	Maximum	Units
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	20	
Continuous Drain Current ^a	I_D	$T_A = 25^\circ C$	0.32
		$T_A = 70^\circ C$	0.26
Pulsed Drain Current ^b	I_{DM}	0.7	A
Continuous Source Current (Diode Conduction) ^a	I_S	0.25	A
Power Dissipation ^a	P_D	$T_A = 25^\circ C$	0.3
		$T_A = 70^\circ C$	0.21
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ C$

THERMAL RESISTANCE RATINGS			
Parameter	Symbol	Maximum	Units
Maximum Junction-to-Ambient ^a	R_{THJA}	$t \leq 5$ sec	415
		Steady-State	460

Notes

- a. Surface Mounted on 1" x 1" FR4 Board.
- b. Pulse width limited by maximum junction temperature

SPECIFICATIONS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$	1.0			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 48 \text{ V}, V_{GS} = 0 \text{ V}$			1	μA
		$V_{DS} = 48 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 55^\circ\text{C}$			50	
On-State Drain Current ^A	$I_{D(on)}$	$V_{DS} = 5 \text{ V}, V_{GS} = 10 \text{ V}$	0.3			A
Drain-Source On-Resistance ^A	$r_{DS(on)}$	$V_{GS} = 10 \text{ V}, I_D = 0.3 \text{ A}$			2	Ω
		$V_{GS} = 4.5 \text{ V}, I_D = 0.2 \text{ A}$			3	
Forward Transconductance ^A	g_{fs}	$V_{DS} = 4.5 \text{ V}, I_D = 0.3 \text{ A}$		8		S
Diode Forward Voltage	V_{SD}	$I_S = 0.2 \text{ A}, V_{GS} = 0 \text{ V}$		1.10		V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = 10 \text{ V}, V_{GS} = 5 \text{ V}, I_D = 0.3 \text{ A}$		0.4		nC
Gate-Source Charge	Q_{gs}			0.1		
Gate-Drain Charge	Q_{gd}			0.1		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 10 \text{ V}, R_L = 30 \Omega, I_D = 0.3 \text{ A}, V_{GEN} = 10 \text{ V}$		10		ns
Rise Time	t_r			6		
Turn-Off Delay Time	$t_{d(off)}$			20		
Fall-Time	t_f			3		

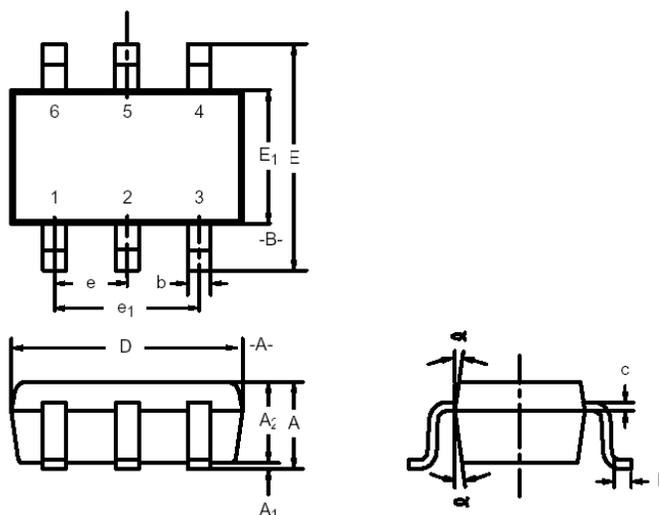
Notes

- Pulse test: $PW \leq 300\mu\text{s}$ duty cycle $\leq 2\%$.
- Guaranteed by design, not subject to production testing.

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Package Information

SC-70: 6LEAD



Dim	MILLIMETERS			INCHES		
	Min	Nom	Max	Min	Nom	Max
A	0.90	—	1.10	0.035	—	0.043
A ₁	—	—	0.10	—	—	0.004
A ₂	0.80	—	1.00	0.031	—	0.039
b	0.15	—	0.30	0.006	—	0.012
c	0.10	—	0.25	0.004	—	0.010
D	1.80	2.00	2.20	0.071	0.079	0.087
E	1.80	2.10	2.40	0.071	0.083	0.094
E ₁	1.15	1.25	1.35	0.045	0.049	0.053
e	0.65BSC			0.026BSC		
e ₁	1.20	1.30	1.40	0.047	0.051	0.055
L	0.10	0.20	0.30	0.004	0.008	0.012
α	7°Nom			7°Nom		