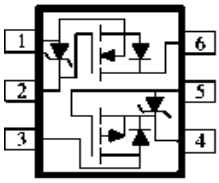
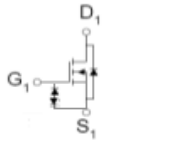
These miniature surface mount MOSFETs utilize a high cell density trench process to provide low $r_{DS(on)}$ and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA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

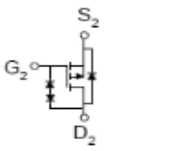
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
30	0.09 @ V_{GS} = 4.5V	1.5
	0.18 @ V_{GS} = 2.5V	1.1
-30	0.21 @ V_{GS} = -4.5V	-1.0
	0.29 @ V_{GS} = -2.5V	-0.9

Pb-free
RoHS COMPLIANT
HALOGEN FREE





N-Channel MOSFET



P-Channel MOSFET

ESD Protected
2000V

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C UNLESS OTHERWISE NOTED)					
Parameter		**Symbol**	**N-Channel**	**P-Channel**	**Units**
Drain-Source Voltage		V_{DS}	30	-30	V
Gate-Source Voltage		V_{GS}	8	-8	
Continuous Drain Current[a]	T_A=25°C	I_D	1.5	1	A
	T_A=70°C		1.3	0.8	
Pulsed Drain Current[b]		I_{DM}	0.7	-1.2	
Continuous Source Current (Diode Conduction)[a]		I_S	0.25	-0.25	A
Power Dissipation[a]	T_A=25°C	P_D	0.3	0.3	W
	T_A=70°C		0.21	0.21	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150		°C

THERMAL RESISTANCE RATINGS				
Parameter		**Symbol**	**Maximum**	**Units**
Maximum Junction-to-Ambient[a]	t <= 5 sec	R_{THJA}	415	°C/W
	Steady-State		460	

Notes

a. Surface Mounted on 1" x 1" FR4 Board.

b. Pulse width limited by maximum junction temperature

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 uA **(N-ch)**	0.3			V
		V_{DS} = V_{GS}, I_D = -250 uA **(P-ch)**	-0.3			V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±8 V			±10	uA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 8 V, V_{GS} = 0 V **(N-ch)**			1	uA
		V_{DS} = -8 V, V_{GS} = 0 V **(P-ch)**			-1	
On-State Drain Current	$I_{D(on)}$	V_{DS} = 5 V, V_{GS} = 4.5 V **(N-ch)**	1.5			A
		V_{DS} = -5 V, V_{GS} = -4.5 V **(P-ch)**	-1.5			A
Drain-Source On-Resistance	$r_{DS(on)}$	V_{GS} = 4.5 V, I_D = 1.2 A **(N-ch)**			90	mΩ
		V_{GS} = 2.5 V, I_D = 0.96 A **(N-ch)**			180	
		V_{GS} = -4.5 V, I_D = -0.8 A **(P-ch)**			210	mΩ
		V_{GS} = -4.5 V, I_D = -0.64 A **(P-ch)**			290	
Forward Transconductance	g_{fs}	V_{DS} = 10 V, I_D = 1.2 A **(N-ch)**		3		S
		V_{DS} = -10 V, I_D = -0.8 A **(P-ch)**		5		S
Diode Forward Voltage	V_{SD}	I_S = 0.2 A, V_{GS} = 0 V **(N-ch)**		0.65		V
		I_S = -1.2 A, V_{GS} = 0 V **(P-ch)**		-0.66		V
Dynamic						
Total Gate Charge	Q_g	N - Channel V_{DS} = 10 V, V_{GS} = 4.5 V, I_D = 1.2 A		5		nC
Gate-Source Charge	Q_{gs}			0.3		
Gate-Drain Charge	Q_{gd}			0.7		
Turn-On Delay Time	$t_{d(on)}$	N - Channel V_{DD} = 10 V, R_L = 8.3 Ω, I_D = 1.2 A, V_{GEN} = 4.5 V, R_{GEN} = 6 Ω		8		ns
Rise Time	t_r			13		
Turn-Off Delay Time	$t_{d(off)}$			25		
Fall Time	t_f			8		
Input Capacitance	C_{iss}	N - Channel V_{DS} = 15 V, V_{GS} = 0 V, f = 1 MHz		73		pF
Output Capacitance	C_{oss}			25		
Reverse Transfer Capacitance	C_{rss}			20		
Total Gate Charge	Q_g	P - Channel V_{DS} = -10 V, V_{GS} = 4.5 V, I_D = -0.8 A		4		nC
Gate-Source Charge	Q_{gs}			0.5		
Gate-Drain Charge	Q_{gd}			0.9		
Turn-On Delay Time	$t_{d(on)}$	P - Channel V_{DD} = -10 V, R_L = 12.5 Ω, I_D = -0.8 A, V_{GEN} = -4.5 V, R_{GEN} = 6 Ω		8		ns
Rise Time	t_r			10		
Turn-Off Delay Time	$t_{d(off)}$			28		
Fall Time	t_f			13		
Input Capacitance	C_{iss}	P - Channel V_{DS} = -15 V, V_{GS} = 0 V, f = 1 MHz		120		pF
Output Capacitance	C_{oss}			28		
Reverse Transfer Capacitance	C_{rss}			25		

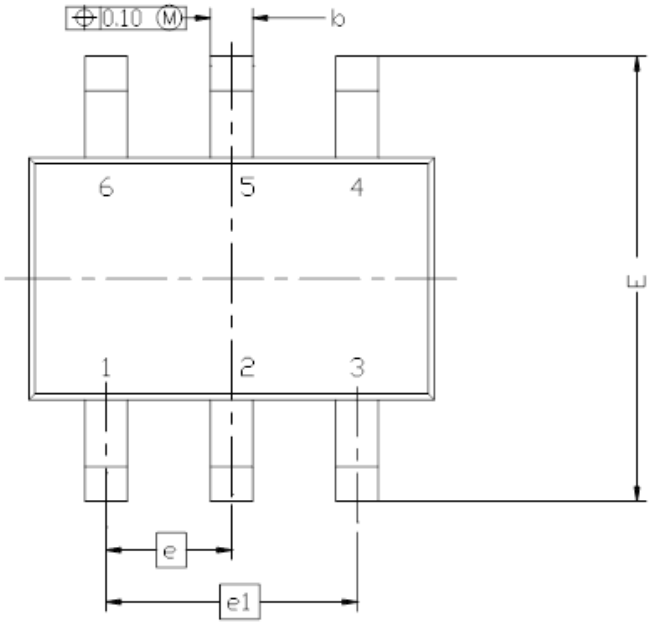
Notes

a. Pulse test: PW <= 300us duty cycle <= 2%.

b. Guaranteed by design, not subject to production testing.

Package Information

SC-70: 6LEAD



DIM.	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.900	0.95	1.10	0.035	0.037	0.043
A1	0.00	---	0.10	0.000	---	0.004
A2	0.70	0.90	1.00	0.028	0.035	0.039
b	0.15	0.22	0.30	0.006	0.016	0.012
c	0.08	0.127	0.20	0.003	0.005	0.008
D	2.10 BSC			0.083 BSC		
E	2.30 BSC			0.091 BSC		
E1	1.30 BSC			0.051 BSC		
e	0.65 BSC			0.026 BSC		
e1	1.30 BSC			0.051 BSC		
L	0.26	0.40	0.46	0.010	0.015	0.018
L2	0.254BSC			0.010BSC		
R	0.10	---	---	0.004	---	---
θ	0?	4?	8?	0?	4?	8?
θ1	7?NOM			7?NOM