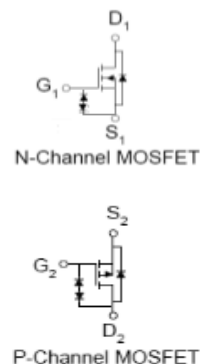
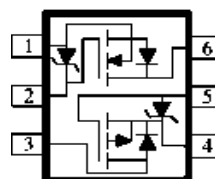
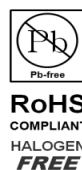


These miniature surface mount MOSFETs utilize a high cell density trench process to provide low  $r_{DS(on)}$  and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA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



### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ C$ 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 <sup>a</sup>	$I_D$	$T_A=25^\circ C$	1.5	A
		$T_A=70^\circ C$	1.3	
Pulsed Drain Current <sup>b</sup>	$I_{DM}$	0.7	-1.2	
Continuous Source Current (Diode Conduction) <sup>a</sup>	$I_S$	0.25	-0.25	A
Power Dissipation <sup>a</sup>	$P_D$	$T_A=25^\circ C$	0.3	W
		$T_A=70^\circ C$	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 <sup>a</sup>	$R_{THJA}$	$t \leq 5$ sec	415
		Steady-State	460

#### Notes

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static</b>						
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu A$ (N-ch)	0.3			V
		$V_{DS} = V_{GS}, I_D = -250 \mu A$ (P-ch)	-0.3			V
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0 V, V_{GS} = \pm 8 V$			$\pm 10$	$\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 8 V, V_{GS} = 0 V$ (N-ch)			1	$\mu A$
		$V_{DS} = -8 V, V_{GS} = 0 V$ (P-ch)			-1	$\mu A$
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	$m\Omega$
		$V_{GS} = 2.5 V, I_D = 0.96 A$ (N-ch)			180	$m\Omega$
		$V_{GS} = -4.5 V, I_D = -0.8 A$ (P-ch)			210	$m\Omega$
		$V_{GS} = -4.5 V, I_D = -0.64 A$ (P-ch)			290	$m\Omega$
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
<b>Dynamic</b>						
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 $V_{DD} = 10 V, R_L = 8.3 \Omega,$ $I_D = 1.2 A,$ $V_{GEN} = 4.5 V, R_{GEN} = 6 \Omega$		8		ns
Rise Time	$t_r$		13			
Turn-Off Delay Time	$t_{d(off)}$		25			
Fall Time	$t_f$		8			
Input Capacitance	$C_{iss}$		73			
Output Capacitance	$C_{oss}$	N - Channel $V_{DS} = 15 V, V_{GS} = 0 V, f = 1 MHz$		25		pF
Reverse Transfer Capacitance	$C_{rss}$		20			
Total Gate Charge	$Q_g$		4			
Gate-Source Charge	$Q_{gs}$	P - Channel $V_{DS} = -10 V, V_{GS} = 4.5 V, I_D = -0.8 A$		0.5		nC
Gate-Drain Charge	$Q_{gd}$		0.9			
Turn-On Delay Time	$t_{d(on)}$		8			
Rise Time	$t_r$	P - Channel $V_{DD} = -10 V, R_L = 12.5 \Omega,$ $I_D = -0.8 A,$ $V_{GEN} = -4.5 V, R_{GEN} = 6 \Omega$		10		ns
Turn-Off Delay Time	$t_{d(off)}$		28			
Fall Time	$t_f$		13			
Input Capacitance	$C_{iss}$		120			
Output Capacitance	$C_{oss}$	P - Channel $V_{DS} = -15 V, V_{GS} = 0 V, f = 1 MHz$		28		pF
Reverse Transfer Capacitance	$C_{rss}$		25			

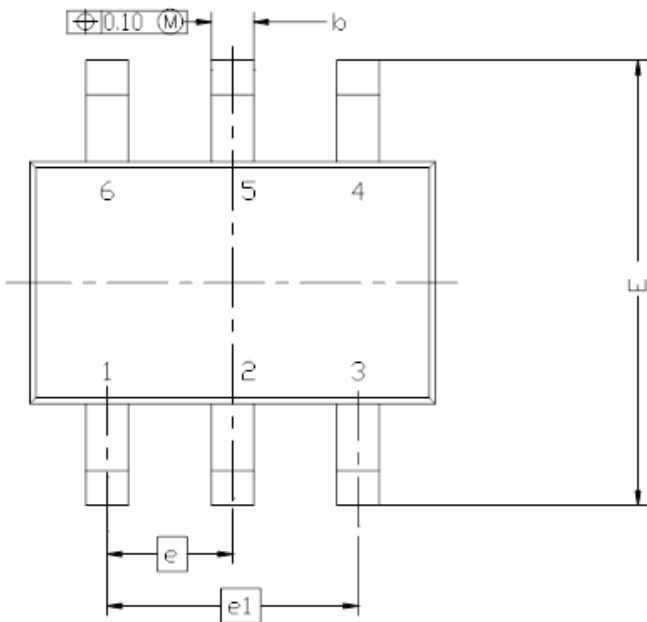
## Notes

- Pulse test:  $PW \leq 300 \mu s$  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	0.900	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		

