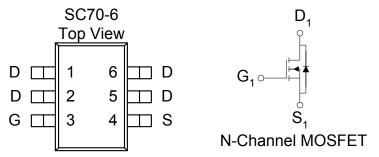
N-Channel 30V (D-S) MOSFET

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.

PRODUCT SUMMARY			
V _{DS} (V)	$V_{\mathrm{DS}}\left(\mathbf{V}\right) \qquad \mathbf{r}_{\mathrm{DS(on)}}\left(\Omega\right) \qquad \mathbf{I}_{\mathrm{D}}\left(A\right)$		
30	$0.058 @V_{CS} = 10 V$	4.3	
	$0.082 @V_{CS} = 4.5V$	3.6	

- 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



ABSOLUTE MAXIMUM RATINGS ($T_A = 25$ °C UNLESS OTHERWISE NOTED)					
Parameter Parameter		Symbol	Maximum	Units	
Drain-Source Voltage		V_{DS}	30	V	
Gate-Source Voltage		V_{cs}	±20	V	
C t D · C ta	T _A =25°C	T_	4.3		
Continuous Drain Current ^a	$T_{A}=25^{\circ}C$ $T_{A}=70^{\circ}C$	тD	3.5	A	
Pulsed Drain Current ^b		I_{DM}	±20		
Continuous Source Current (Diode Conduction) ^a			1.6	Α	
D D: : a	T _A =25°C	D_	1.56	W	
Power Dissipation ^a	$T_{A}=25^{\circ}C$ $T_{A}=70^{\circ}C$	тр	0.81		
Operating Junction and Storage Temperature Range		T _J , T _{stg}	-55 to 150	°C	

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Maximum	Units	
1	t <= 5 sec	D	100	00/W	
Maximum Junction-to-Ambient ^a	Steady-State	R_{THJA}	166	C/W	

1

Notes

PRELIMINARY

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

SPECIFICATIONS (T _A = 25°C UNLESS OTHERWISE NOTED)							
D	Calal	Total Charles		Limits		Unit	
Parameter	Symbol	Symbol Test Conditions		Тур	Max		
Static							
Cate-Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}, I_D = 250 \text{ uA}$	1			V	
Gate-Body Leakage	Igss	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			±100	nA	
Zero Gate Voltage Drain Current	IDSS	$V_{DS} = 24 \text{ V}, V_{GS} = 0 \text{ V}$			1	uA	
	IDSS	$V_{DS} = 24 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 55^{\circ}\text{C}$			10		
On-State Drain Current ^A	I _{D(on)}	$V_{DS}=5V$, $V_{GS}=4.5V$	10			Α	
D · C O D · A	******	$V_{GS} = 10 \text{ V}, I_D = 4.3 \text{ A}$			58		
Drain-Source On-Resistance ^A	fDS(on)	$V_{GS} = 4.5 \text{ V}, I_D = 3.6 \text{ A}$			82	mΩ	
Forward Tranconductance ^A	gs	$V_{DS} = 10 \text{ V}, I_D = 4.3 \text{ A}$		11.3		S	
Diode Forward Voltage	Vsd	$I_S = 1.6 A, V_{GS} = 0 V$		0.75		V	
Dynamic ^b	-						
Total Gate Charge	Qg			7.5			
Gate-Source Charge	Qgs	$V_{DS} = 10 \text{ V}, V_{GS} = 4.5 \text{ V}, I_D = 4.3 \text{ A}$		0.6		пС	
Gate-Drain Charge	Qgd	1		1.0			
Input Capacitance	Gss	N15XXX0X		720			
Output Capacitance	Coss	$V_{DS} = 15 \text{ V}, V_{GS} = 0 \text{ V}, \qquad \qquad f$ $= 1 \text{MHz}$		165		рF	
Reverse Transfer Capacitance	Crss			60			
Turn-On Delay Time	td(on)			8			
Rise Time	t _r	$V_{DD} = 10 \text{ V}, R_L = 15 \Omega, I_D = 1 \text{ A}, V_{GEN} = 4.5 \text{ V}$		24		ns	
Turn-Off Delay Time	td(off)			35			
Fall-Time	tf			10			

Notes

- a. Pulse test: $PW \le 300us duty cycle \le 2\%$.
- b. Guaranteed by design, not subject to production testing.

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