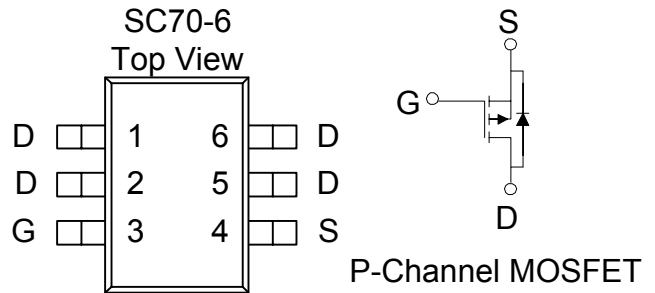


P-Channel 20-V (D-S) MOSFET

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)	$r_{DS(on)}$ (OHM)	I_D (A)
-20	0.079 @ $V_{GS} = -4.5V$	-3.7
	0.110 @ $V_{GS} = -2.5V$	-3.1



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ UNLESS OTHERWISE NOTED)			
Parameter	Symbol	Maximum	Units
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 8	
Continuous Drain Current ^a	I_D	$T_A = 25^\circ C$	-3.7
		$T_A = 70^\circ C$	-3.0
Pulsed Drain Current ^b	I_{DM}	-10	A
Continuous Source Current (Diode Conduction) ^a	I_S	± 1.4	A
Power Dissipation ^a	P_D	$T_A = 25^\circ C$	1.56
		$T_A = 70^\circ C$	0.81
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	80
		Steady-State	125

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	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250 \mu\text{A}$	-0.4			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 8 \text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -16 \text{ V}, V_{GS} = 0 \text{ V}$			-1	uA
		$V_{DS} = -16 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 55^\circ\text{C}$			-10	
On-State Drain Current ^A	$I_{D(on)}$	$V_{DS} = -5 \text{ V}, V_{GS} = -4.5 \text{ V}$	-5			A
Drain-Source On-Resistance ^A	$r_{DS(on)}$	$V_{GS} = -4.5 \text{ V}, I_D = -3.7 \text{ A}$			79	m Ω
		$V_{GS} = -2.5 \text{ V}, I_D = -3.1 \text{ A}$			110	
Forward Transconductance ^A	g_{fs}	$V_{DS} = -5 \text{ V}, I_D = -1.25 \text{ A}$		9		S
Diode Forward Voltage	V_{SD}	$I_S = -0.46 \text{ A}, V_{GS} = 0 \text{ V}$		-0.65		V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = -10 \text{ V}, V_{GS} = -4.5 \text{ V}, I_D = -3.7 \text{ A}$		7.2		nC
Gate-Source Charge	Q_{gs}			1.7		
Gate-Drain Charge	Q_{gd}			1.5		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -10 \text{ V}, I_L = -1 \text{ A}, V_{GEN} = -4.5 \text{ V}, R_G = 6 \Omega$		10		ns
Rise Time	t_r			9		
Turn-Off Delay Time	$t_{d(off)}$			27		
Fall-Time	t_f			11		

Notes

- Pulse test: PW \leq 300us duty cycle \leq 2%.
- Guaranteed by design, not subject to production testing.
- Repetitive rating, pulse width limited by junction temperature.

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