

MSE20N06N

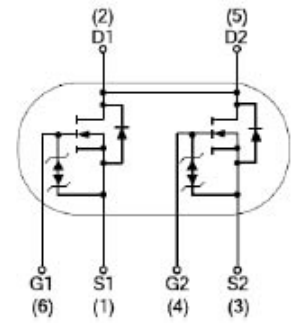
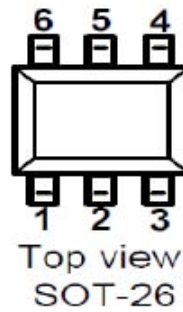
Dual N-Channel 20-V (D-S) MOSFET

FEATURES

- Low RDS(on) trench technology
- Low thermal impedance
- Fast switching speed

Typical Applications:

- Battery Powered Instruments
- Portable Computing
- Mobile Phones
- GPS Units and Media Players



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Limit	Units
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 8	
Continuous Drain Current ^a	I_D	$T_A = 25^\circ\text{C}$	6
		$T_A = 100^\circ\text{C}$	3.6
Pulsed Drain Current ^b	I_{DM}	22	A
Continuous Source Current (Diode Conduction) ^a	I_S	1	A
Power Dissipation ^a	P_D	$T_A = 25^\circ\text{C}$	0.83
		$T_A = 100^\circ\text{C}$	0.3
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS

Parameter	Symbol	Maximum	Units
Maximum Junction-to-Ambient ^a	$R_{\theta JA}$	$t \leq 10 \text{ sec}$	110
		Steady State	150

Notes

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

Electrical Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu A$	20			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 V, V_{GS} = \pm 8 V$			± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 16 V, V_{GS} = 0 V$			1	μA
		$V_{DS} = 16 V, V_{GS} = 0 V, T_J = 85^\circ C$			30	
On-State Drain Current	$I_{D(on)}$	$V_{DS} = 5 V, V_{GS} = 4.5 V$	10			A
Drain-Source On-Resistance	$r_{DS(on)}$	$V_{GS} = 4.5 V, I_D = 6 A$			20	m Ω
		$V_{GS} = 2.5 V, I_D = 5 A$			28	
Forward Transconductance	g_{fs}	$V_{DS} = 15 V, I_D = 6 A$		10		S
Diode Forward Voltage	V_{SD}	$I_S = 1.0 A, V_{GS} = 0 V$		0.7		V
Dynamic						
Total Gate Charge	Q_g	$V_{DS} = 10 V, V_{GS} = 4.5 V, I_D = 6 A$		13.5		nC
Gate-Source Charge	Q_{gs}			0.9		
Gate-Drain Charge	Q_{gd}			5.4		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 10 V, R_L = 10 \Omega, I_D = 1 A,$ $V_{GEN} = 4.5 V, R_{GEN} = 6 \Omega$		6		ns
Rise Time	t_r			12		
Turn-Off Delay Time	$t_{d(off)}$			65		
Fall Time	t_f			35		
Input Capacitance	C_{iss}	$V_{DS} = 10 V, V_{GS} = 0 V, f = 1 MHz$		680		pF
Output Capacitance	C_{oss}			144		
Reverse Transfer Capacitance	C_{rss}			137		

Notes

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

• Characteristic Curves

