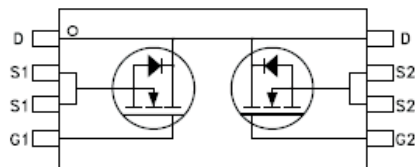
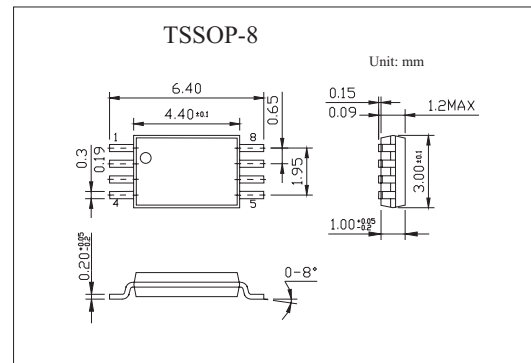


Dual N-Channel PowerTrench MOSFET 5N20V

■ Features

- Typical $R_{DS(on)}=0.03$ @ 4.5V
- Typical $R_{DS(on)}=0.037$ @ 2.7V
- Ultra Low Threshold
- Standard Outline For Esay Automated Surface Mount Assembly



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Drain-source Voltage ($V_{GS} = 0$)	V_{DS}	20	V
Drain-gate Voltage ($R_{GS} = 20\text{ k}\Omega$)	V_{DGR}	20	V
Gate- source Voltage	V_{GS}	± 12	V
Drain Current (continuous) at $T_c = 25^\circ\text{C}$	I_D	5	A
Drain Current (continuous) at $T_c = 100^\circ\text{C}$	I_D	3	A
Drain Current (pulsed) *1	I_{DM}	20	A
Total Dissipation at $T_c = 25^\circ\text{C}$	P_D	1.5	W
Thermal Resistance Junction-PCB *3	$R_{thj-pcb}$	100	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction-PCB *2	$R_{thj-pcb}$	83.5	$^\circ\text{C}/\text{W}$
Operating Junction Temperature	T_j	-55 to 150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to 150	$^\circ\text{C}$

*1 Pulse width limited by safe operating area.

*2 When Mounted on FR-4 board with 1 inch² pad, 2 oz of Cu and $t \leq 10$ sec

*3 When Mounted on minimum recommended footprint

5N20V

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-source Breakdown Voltage	V _{DSS}	I _D = 250μA, V _{GS} = 0	20			V
Zero Gate Voltage Drain Current (V _{GS} = 0)	I _{DSS}	V _{DS} = Max Rating			1	μA
		V _{DS} = Max Rating T _C = 125°C			10	μA
Gate-body Leakage Current (V _{DS} = 0)	I _{GSS}	V _{GS} = ± 12V			± 100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} I _D = 250 μA	0.6			V
Static Drain-source On Resistance	R _{DS(on)}	V _{GS} = 4.5 V I _D = 2.5 A		0.030	0.040	Ω
		V _{GS} = 2.7 V I _D = 2.5 A		0.037	0.045	Ω
Forward Transconductance	g _{fs} *1	V _{DS} =15 V I _D = 2.5 A		9.5		S
Input Capacitance	C _{iss}	V _{DS} = 15V f = 1 MHz, V _{GS} = 0		460		pF
Output Capacitance	C _{oss}			200		pF
Reverse Transfer Capacitance	C _{rss}			50		pF
Turn-on Delay Time	t _{d(on)}		V _{DD} = 10 V I _D = 2.5 A		7	
Rise Time	t _r	R _G = 4.7 Ω V _{GS} = 4.5 V		33		ns
Total Gate Charge	Q _g	V _{DD} = 16V I _D = 5A V _{GS} =4.5V		8.5	11.5	nC
Gate-Source Charge	Q _{gs}			1.8		nC
Gate-Drain Charge	Q _{gd}			2.4		nC
Turn-off Delay Time	t _{d(off)}		V _{DD} = 10 V I _D = 2.5 A		27	
Fall Time	t _f	R _G = 4.7Ω, V _{GS} = 4.5 V		10		ns
Off-voltage Rise Time	t _{d(Voff)}	V _{clamp} = 16 V I _D = 5 A, R _G = 4.7Ω, V _{GS} = 4.5 V		26		ns
Fall Time	t _f			11		ns
Cross-over Time	t _c			21		ns
Forward On Voltage	V _{SD} *1		I _{SD} = 5 A V _{GS} = 0			1.2
Reverse Recovery Time	t _{rr}	I _{SD} = 5 A di/dt = 100A/μs		26		ns
Reverse Recovery Charge	Q _{rr}	V _{DD} = 10 V T _j = 150°C		13		nC
Reverse Recovery Current	I _{RRM}			1		A
Source-drain Current	I _{SD}				5	A
Source-drain Current (pulsed)	I _{SDM} *2				20	A

*1 Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %.

*2 Pulse width limited by safe operating area.