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

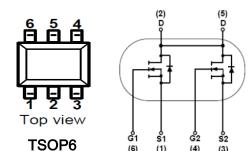
Key Features:

- Low r_{DS(on)} trench technology
- · Low thermal impedance
- · Fast switching speed

Typical	Applica	tions:
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- Battery Powered Instruments
- Portable Computing
- Mobile Phones
- · GPS Units and Media Players





PRODUCT SUMMARY

 $r_{DS(on)}(m\Omega)$

 $24.5 @ V_{GS} = 4.5V$

38 @ V_{GS} = 2.5V

 $I_D(A)$

6

5

V_{DS} (V)

20

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^{\circ}$ C UNLESS OTHERWISE NOTED)					
Parameter		Symbol	Limit	Units	
Drain-Source Voltage			20	V	
Gate-Source Voltage		V_{GS}	±10	V	
Continuous Drain Current ^a	T _A =25°C	I_	6		
Continuous Drain Current	T _A =100°C	I _D	3.6	Α	
Pulsed Drain Current ^b		I _{DM}	20		
Continuous Source Current (Diode Conduction) a		I _S	1	Α	
Dower Dissipation a	T _A =25°C	P _D	0.83	W	
Power Dissipation ^a	T _A =100°C	l 'D	0.3	VV	
Operating Junction and Storage Temperature Range		T_J , T_{stg}	-55 to 150	°C	

THERMAL RESISTANCE RATINGS				
Parameter		Symbol	Maximum	Units
Maximum Junction-to-Ambient ^a	t <= 10 sec	$R_{\theta JA}$	110	°C/W
IMAXIMUM Sunction-to-Ambient	Steady State	IΛθJA	150	

Notes

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

Electrical Characteristics

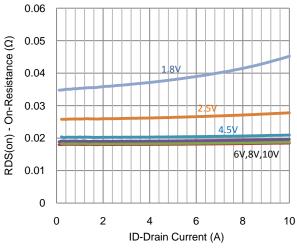
Parameter	Symbol	Test Conditions	Min	Тур	Max	Unit
	Static					
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250 \text{ uA}$	0.5		1.0	V
Gate-Body Leakage	I _{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 10 \text{ V}$			±100	nA
Zero Gate Voltage Drain Current	lana	$V_{DS} = 16 \text{ V}, V_{GS} = 0 \text{ V}$			1	uA
Zelo Gate Voltage Brain Current	I _{DSS}	$V_{DS} = 16 \text{ V}, V_{GS} = 0 \text{ V}, T_{J} = 85^{\circ}\text{C}$			30	uA
On-State Drain Current	I _{D(on)}	$V_{DS} = 5 \text{ V}, V_{GS} = 10 \text{ V}$	10			Α
Drain-Source On-Resistance	r	$V_{GS} = 4.5 \text{ V}, I_D = 6 \text{ A}$			24.5	mΩ
Dialii-Source Ori-Nesistance	r _{DS(on)}	$V_{GS} = 2.5 \text{ V}, I_D = 5 \text{ A}$			38	
Forward Transconductance	g _{fs}	$V_{DS} = 10 \text{ V}, I_{D} = 6 \text{ A}$		10		S
Diode Forward Voltage	V_{SD}	$I_{S} = 1 \text{ A}, V_{GS} = 0 \text{ V}$		0.7		V
Dynamic						
Total Gate Charge	Q_g	$V_{DS} = 10 \text{ V}, V_{GS} = 4.5 \text{ V}, I_{D} = 5.4 \text{ A}$		12.5		nC
Gate-Source Charge	Q_{gs}			0.7		
Gate-Drain Charge	Q_{gd}			4.3		
Turn-On Delay Time	t _{d(on)}	$V_{DD} = 10 \text{ V}, R_{L} = 10 \Omega, I_{D} = 1 \text{ A},$ $V_{GEN} = 4.5 \text{ V}, R_{GEN} = 6 \Omega$		5		
Rise Time	t _r			14		no
Turn-Off Delay Time	$t_{d(off)}$			30		ns
Fall Time	t _f			5		
Input Capacitance	C _{iss}	V _{DS} = 10 V, V _{GS} = 0 V, f = 1 MHz		700		
Output Capacitance	C _{oss}			125		pF
Reverse Transfer Capacitance	C_{rss}			110		

Notes

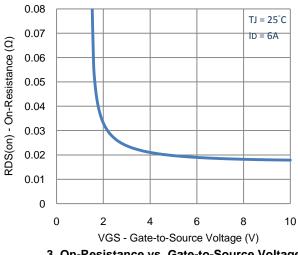
- a. Pulse test: PW <= 300us duty cycle <= 2%.
- b. Guaranteed by design, not subject to production testing.

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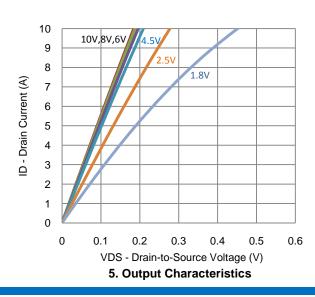
Electrical Characteristics

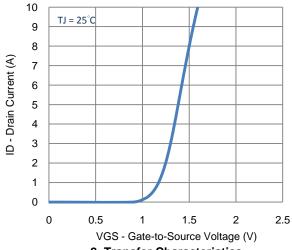


1. On-Resistance vs. Drain Current

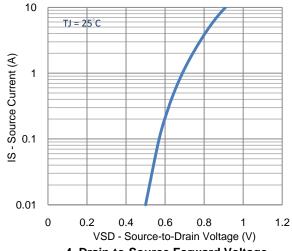


3. On-Resistance vs. Gate-to-Source Voltage

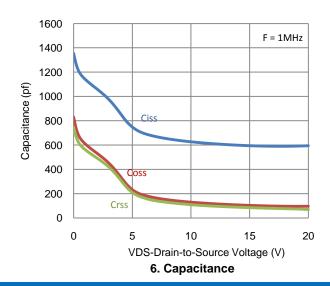




2. Transfer Characteristics

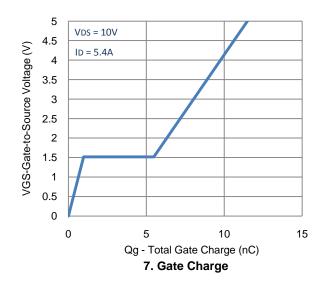


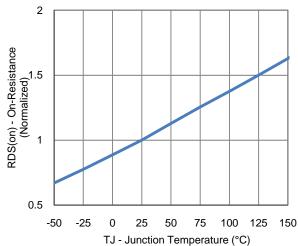
4. Drain-to-Source Forward Voltage



Typical Electrical Characteristics

I_D - Drain Current (A)





Power Dissipation

1.0

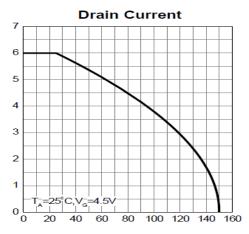
0.8

0.6

0.4

0.2

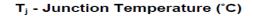
8. Normalized On-Resistance Vs
Junction Temperature

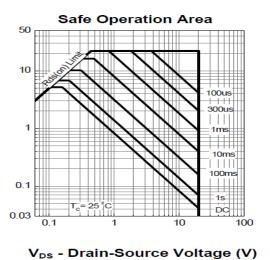


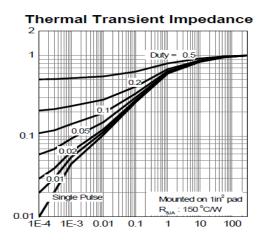
T_j - Junction Temperature (°C)

100 120 140 160

40 60 80







Square Wave Pulse Duration (sec)

Ip - Drain Current (A)

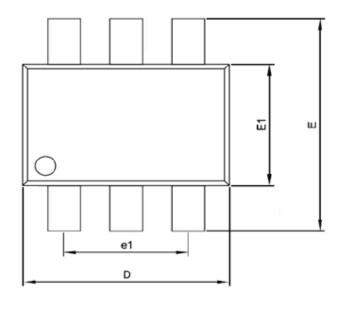
P_{tot} - Power (W)

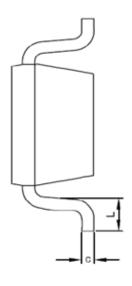
0.0

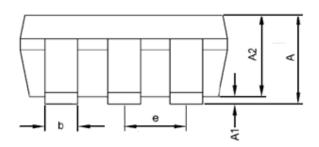
Normalized Effective Transient

Package Information

TSOP6







Cymbol	Dimensions In Millimeters		
Symbol	MIN.	MAX.	
Α		1.45	
A1		0.15	
A2	0.9	1.3	
D	2.90 BSC		
E	2.890 BSC		
E1	1.5	1.7	
С	0.08	0.25	
b	0.3	0.5	
е	0.95BSC		
e1	1.90BSC		
L	0.3	0.6	