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

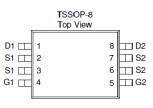
Key Features:

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

Typical Applications:

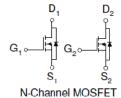
- Battery Powered Instruments
- Portable Computing
- Mobile Phones
- · GPS Units and Media Players





V_{DS} (V)

20



 $I_D(A)$

6.8

5.8

4.7

PRODUCT SUMMARY

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

26 @ V_{GS} = 4.5V

35 @ V_{GS} = 2.5V

46 @ V_{GS} = 1.8V



HALOGEN

FREE

ABSOLUTE MAXIMUM RATINGS (T _A = 25 °C UNLESS OTHERWISE NOTED)					
Parameter		Symbol	Limit	Units	
Orain-Source Voltage		V_{DS}	20	V	
Gate-Source Voltage		V_{GS}	±8	V	
Continuous Dunin Coursent a	T _A =25℃	I_	6.8		
Continuous Drain Current ^a	T _A =70 °C	I _D	5.5	Α	
Pulsed Drain Current ^b		I _{DM}	30		
Continuous Source Current (Diode Conduction) a		I _S	2.2	Α	
Dower Discipation ^a	T _A =25°C	P_{D}	1.5	W	
Power Dissipation ^a	T _A =70°C] 'D	1	• • •	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^{\circ}$	

THERMAL RESISTANCE RATINGS					
Parameter			Maximum	Units	
Maximum Junction-to-Ambient ^a	t <= 10 sec	$R_{\theta JA}$	83	°C/W	
IMAXIMUM JUNCTION-TO-AMBIENT	Steady State	ιιθJΑ	120	G/VV	

1

Notes

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

Electrical Characteristics

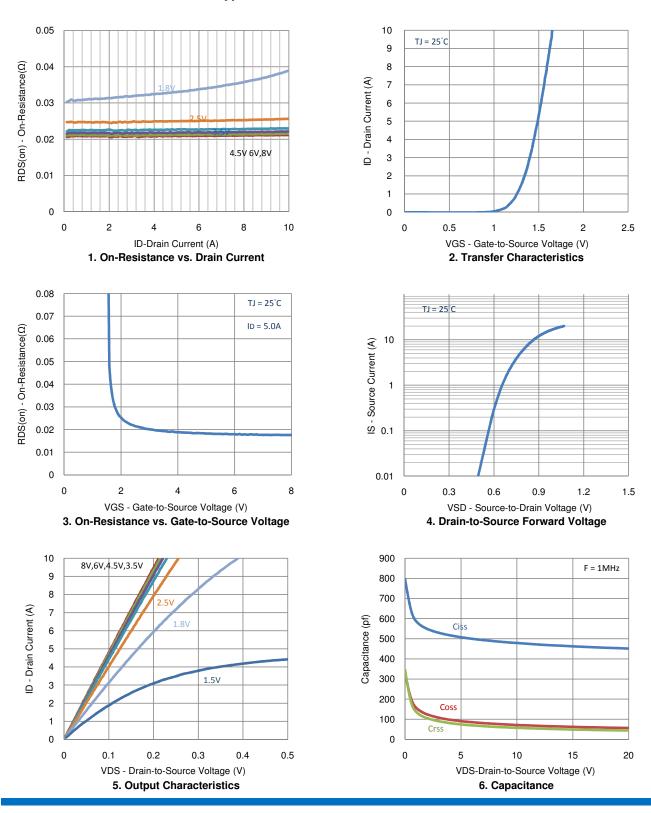
Parameter	Symbol	Test Conditions	Min	Тур	Max	Unit	
Static							
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $ID = 250 \text{ uA}$	0.4			V	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 V$, $V_{GS} = \pm 8 V$			±100	nA	
Zero Gate Voltage Drain Current	I _{DSS}	$V_{DS} = 16 \text{ V}, V_{GS} = 0 \text{ V}$			1	uA	
Zero date voltage Brain ourrent	פאטי	$V_{DS} = 16 \text{ V}, V_{GS} = 0 \text{ V}, T_{J} = 55 ^{\circ}\text{C}$			10	uA	
On-State Drain Current	$I_{D(on)}$	$V_{DS} = 5 \text{ V}, V_{GS} = 4.5 \text{ V}$	25			Α	
		$V_{GS} = 4.5 \text{ V}, I_D = 5.0 \text{ A}$			26		
Drain-Source On-Resistance	$r_{\text{DS(on)}}$	$V_{GS} = 2.5 \text{ V}, I_D = 4.3 \text{ A}$			35	mΩ	
		$V_{GS} = 1.8 \text{ V}, I_D = 3.5 \text{ A}$			46		
Forward Transconductance	g_{fs}	$V_{DS} = 10 \text{ V}, I_{D} = 5.0 \text{ A}$		25		S	
Diode Forward Voltage	V_{SD}	$I_S = 2.2 \text{ A}, V_{GS} = 0 \text{ V}$		0.7		V	
Dynamic							
Total Gate Charge	Q_g			6.2			
Gate-Source Charge	Q_{gs}	V_{DS} = 10 V, V_{GS} = 4.5 V, ID = 5.0 A		1.0		nC	
Gate-Drain Charge	Q_{gd}			1.9			
Turn-On Delay Time	$t_{d(on)}$			12			
Rise Time	t _r	$V_{DD}=10~V,~R_L=2.0~\Omega$, $I_D=5.0~A,$		15		ne	
Turn-Off Delay Time	$t_{d(off)}$	$V_{GEN} = 10 \text{ V}, R_{GEN} = 6 \Omega$		56		ns	
Fall Time	t _f			17			
Input Capacitance	C _{iss}			479			
Output Capacitance	C _{oss}	$V_{DS} = 10 \text{ V}, V_{GS} = 0 \text{ V}, f = 1 \text{ MHz}$		72		pF	
Reverse Transfer Capacitance	C_{rss}			58			

Notes

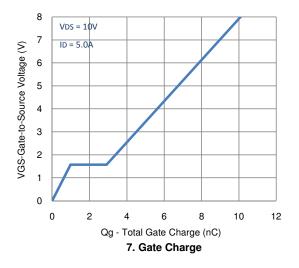
- a. Pulse test: $PW \le 300us duty cycle \le 2\%$.
- b. Guaranteed by design, not subject to production testing.

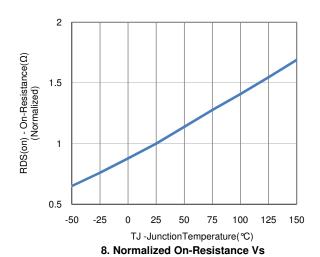
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Typical Electrical Characteristics

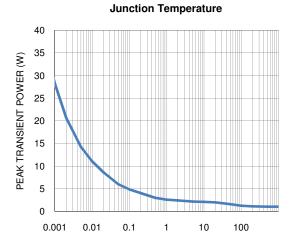


Typical Electrical Characteristics



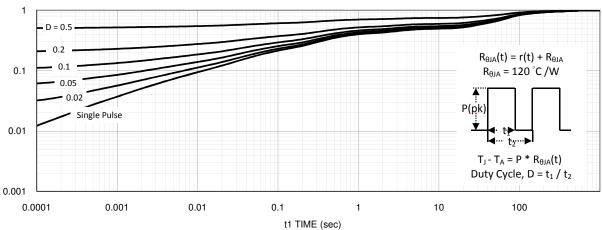


9. Safe Operating Area

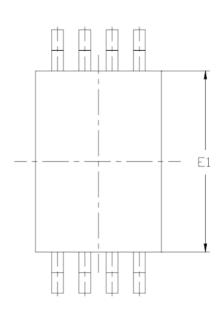




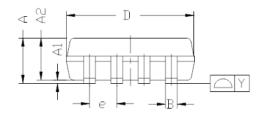
t1 TIME (SEC)

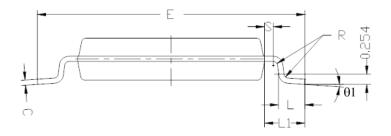


Package Information



DIM	MILLIMETERS				
DIM.	MIN.	N□M.	MAX.		
А	1.05	1.10	1.20		
A(1)	0.05	0.10	0.15		
A(2)	0.99	1.02	1.05		
В	0.19	0.25	0.30		
С		0.127			
D	2.90	3.00	3.10		
Е	6.20	6.40	6.60		
E1	4.30	4.40	4.50		
6	0.65BSC				
L	0.45	0.60	0.75		
L1	0.90	1.00	1.10		
Υ			0.10		
θ1	0°	4°	8°		
R	0.09				
S	0.20				





Note:

- 1. All Dimension Are In mm.
- Package Body Sizes Exclude Mold Flash, Protrusion Or Gate Burrs. Mold Flash, Protrusion Or Gate Burrs Shall Not Exceed 0.10 mm Per Side.
- Package Body Sizes Determined At The Outermost Extremes Of The Plastic Body Exclusive Of Mold Flash, Tie Bar Burrs, Gate Burrs And Interlead Flash, But Including Any Mismatch Between The Top And Bottom Of The Plastic Body. The Package Top May Be Smaller Than The Package Bottom.
- Dimension "B" Does Not Include Dambar Protrusion. Allowable Dambar Protrusion Shall Be 0.08 mm Total In Excess Of "B" Dimension At Maximum Material Condition. The Dambar Cannot Be Located On The Lower Radius Of The Foot.