

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

Key Features:

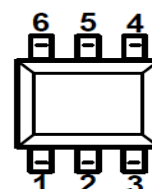
- Low $r_{DS(on)}$ trench technology
- Low thermal impedance
- Fast switching speed

Typical Applications:

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

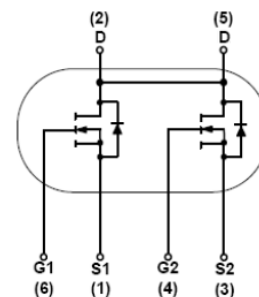


RoHS
COMPLIANT
HALOGEN
FREE



Top view

TSOP6



PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (m Ω)	I_D (A)
20	24.5 @ $V_{GS} = 4.5V$	6
	38 @ $V_{GS} = 2.5V$	5

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}	± 10	
Continuous Drain Current ^a	$T_A = 25^\circ\text{C}$	6	A
	$T_A = 100^\circ\text{C}$	3.6	
Pulsed Drain Current ^b	I_{DM}	20	
Continuous Source Current (Diode Conduction) ^a	I_S	1	A
Power Dissipation ^a	$T_A = 25^\circ\text{C}$	0.83	W
	$T_A = 100^\circ\text{C}$	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	$t \leq 10$ sec	110	$^\circ\text{C}/\text{W}$
	Steady State	150	

Notes

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

Electrical Characteristics

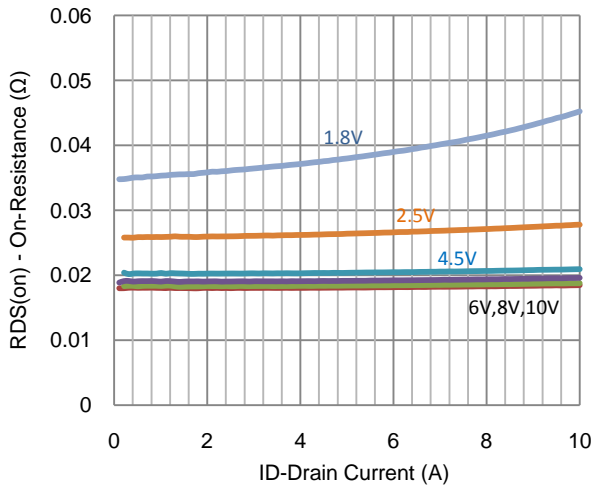
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu A$	0.5		1.0	V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 V, V_{GS} = \pm 10 V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 16 V, V_{GS} = 0 V$			1	uA
		$V_{DS} = 16 V, V_{GS} = 0 V, T_J = 85^\circ C$			30	
On-State Drain Current	$I_{D(on)}$	$V_{DS} = 5 V, V_{GS} = 10 V$	10			A
Drain-Source On-Resistance	$r_{DS(on)}$	$V_{GS} = 4.5 V, I_D = 6 A$			24.5	m Ω
		$V_{GS} = 2.5 V, I_D = 5 A$			38	
Forward Transconductance	g_{fs}	$V_{DS} = 10 V, I_D = 6 A$		10		S
Diode Forward Voltage	V_{SD}	$I_S = 1 A, V_{GS} = 0 V$		0.7		V
Dynamic						
Total Gate Charge	Q_g	$V_{DS} = 10 V, V_{GS} = 4.5 V, I_D = 5.4 A$		12.5		nC
Gate-Source Charge	Q_{gs}			0.7		
Gate-Drain Charge	Q_{gd}			4.3		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 10 V, R_L = 10 \Omega, I_D = 1 A,$ $V_{GEN} = 4.5 V, R_{GEN} = 6 \Omega$		5		ns
Rise Time	t_r			14		
Turn-Off Delay Time	$t_{d(off)}$			30		
Fall Time	t_f			5		
Input Capacitance	C_{iss}	$V_{DS} = 10 V, V_{GS} = 0 V, f = 1 MHz$		700		pF
Output Capacitance	C_{oss}			125		
Reverse Transfer Capacitance	C_{rss}			110		

Notes

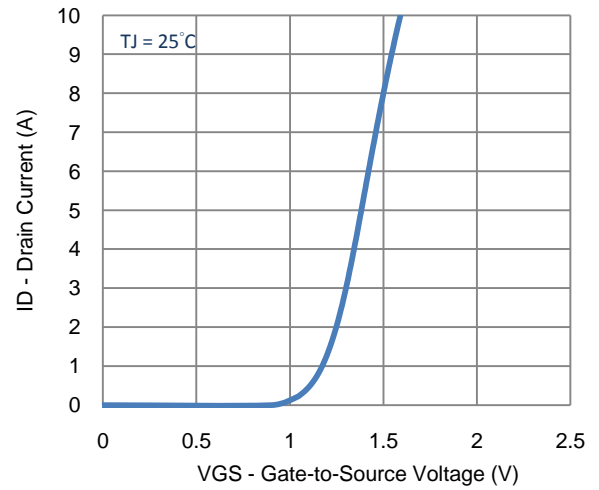
- Pulse test: $PW \leq 300 \mu s$ duty cycle $\leq 2\%$.
- Guaranteed by design, not subject to production testing.

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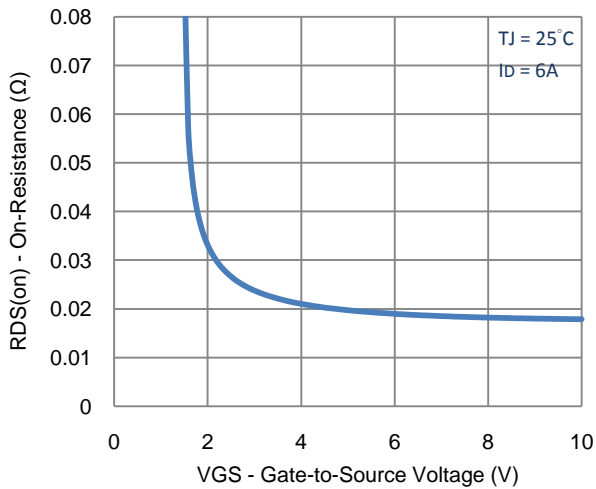
Electrical Characteristics



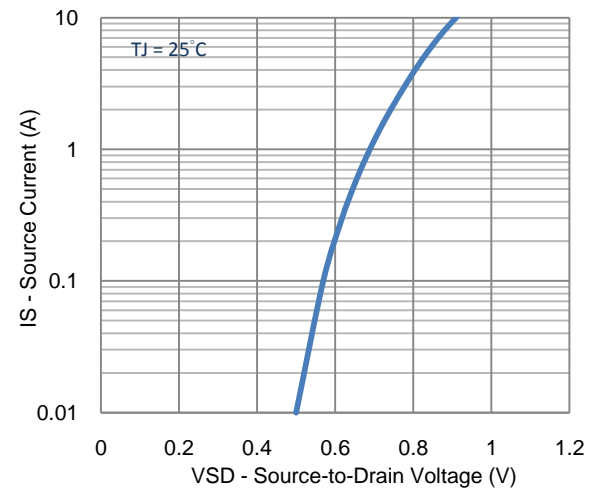
1. On-Resistance vs. Drain Current



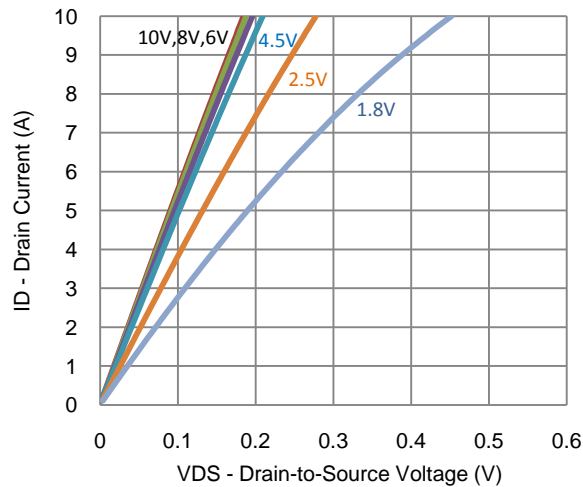
2. Transfer Characteristics



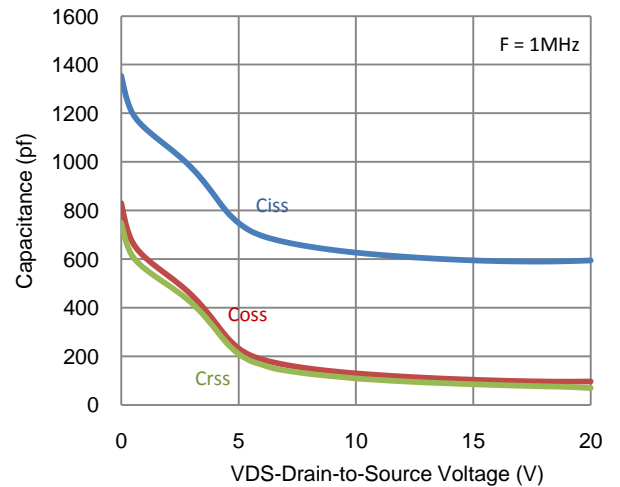
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

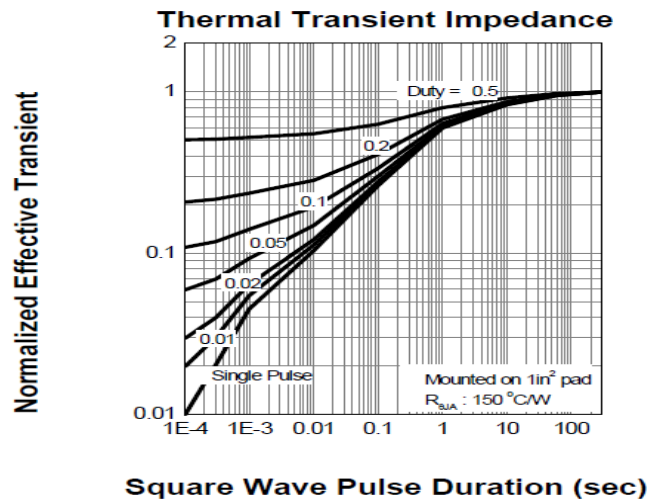
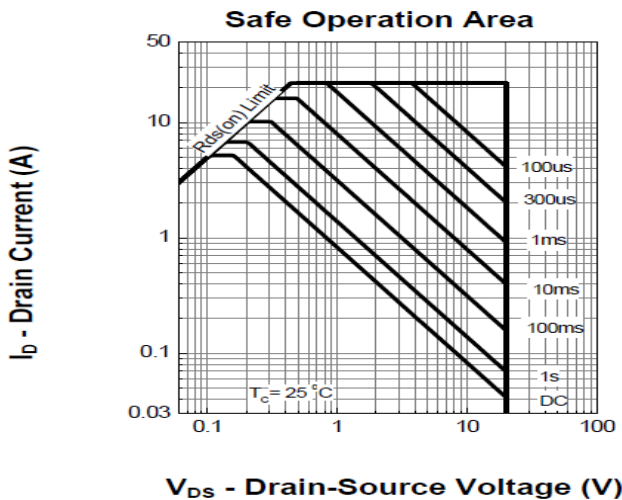
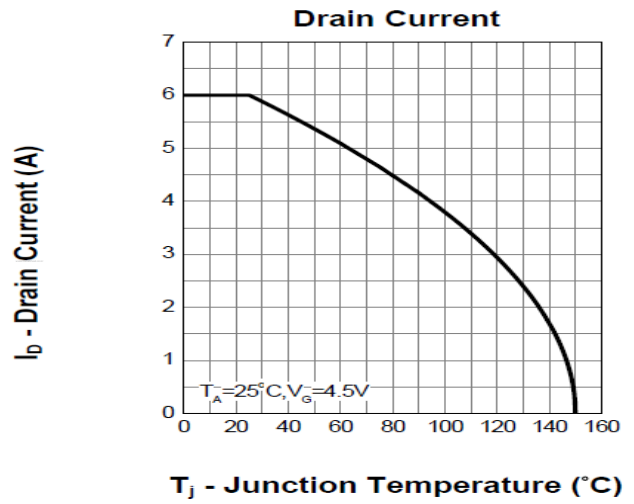
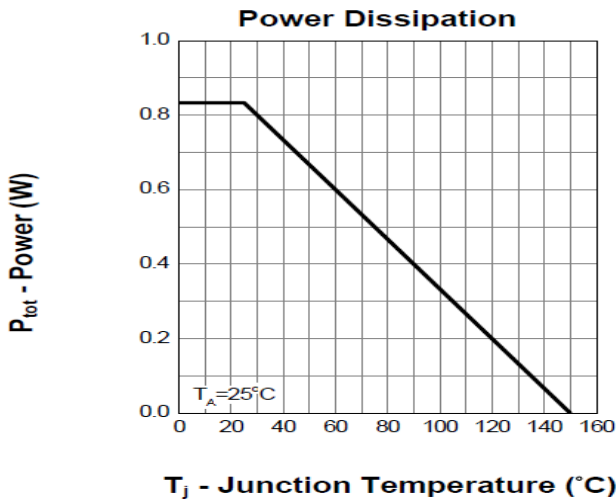
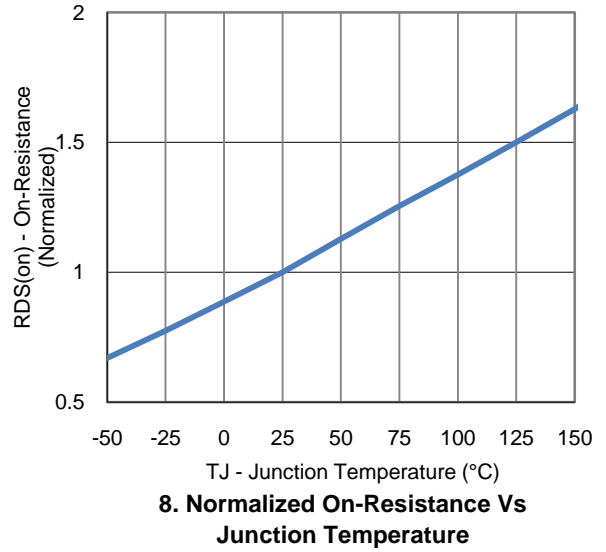
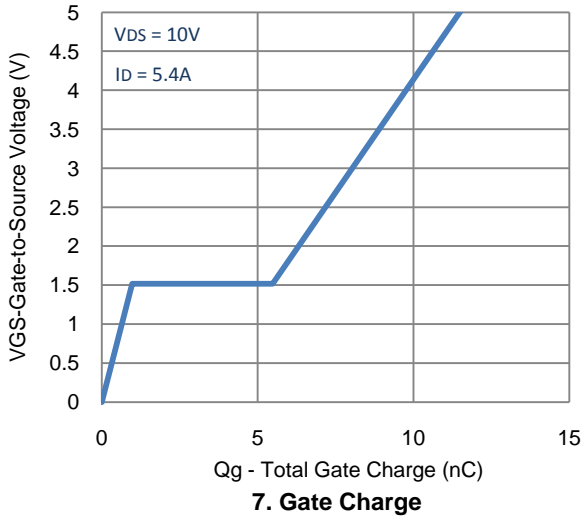


5. Output Characteristics



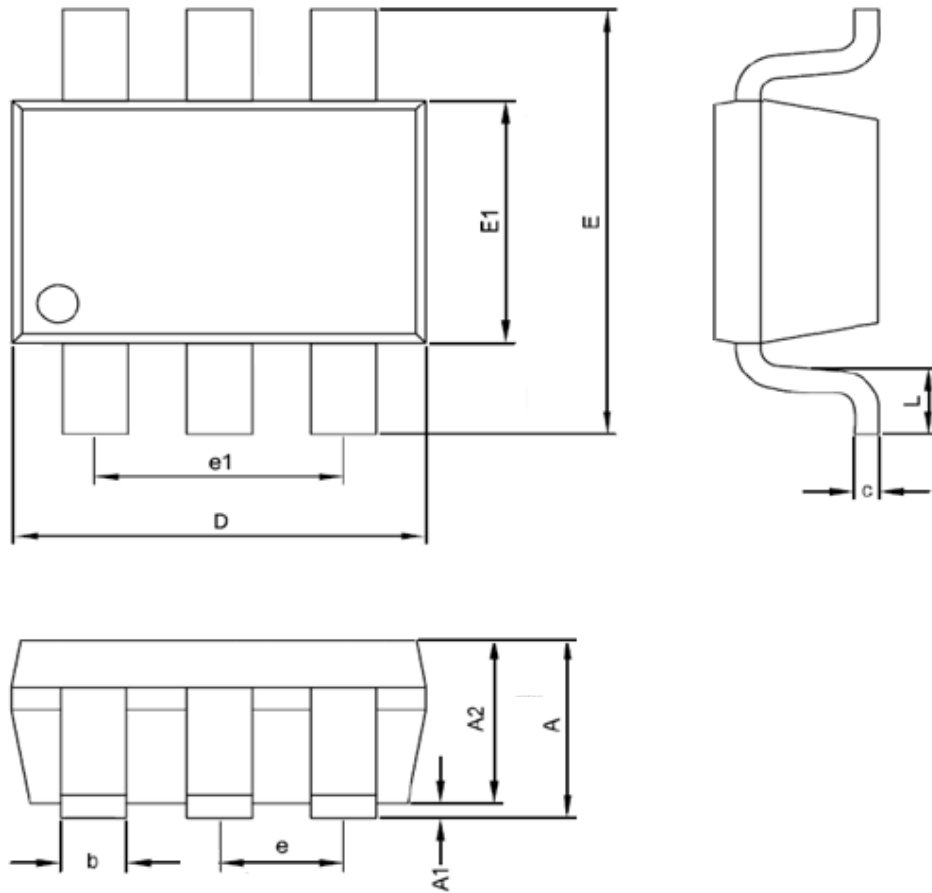
6. Capacitance

Typical Electrical Characteristics



Package Information

TSOP6



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	---	1.45
A1	---	0.15
A2	0.9	1.3
D	2.90 BSC	
E	2.890 BSC	
E1	1.5	1.7
c	0.08	0.25
b	0.3	0.5
e	0.95BSC	
e1	1.90BSC	
L	0.3	0.6