



SI2327DS

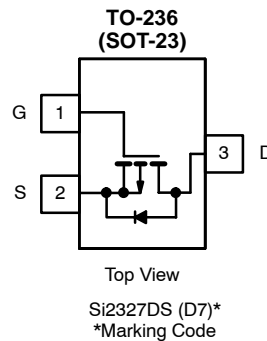
PRODUCT SUMMARY			
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)	Q_g (Typ)
-200	2.35 @ $V_{GS} = -10$ V	-0.49	8.0
	2.45 @ $V_{GS} = -6.0$ V	-0.48	

FEATURES

- TrenchFET® Power MOSFET
- Ultra Low On-Resistance
- Small Size

APPLICATIONS

- Active Clamp Circuits in DC/DC Power Supplies



Ordering Information: SI2327DS -T1—E3

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)					
Parameter	Symbol	5 sec	Steady State	Unit	
Drain-Source Voltage	V_{DS}	-200		V	
Gate-Source Voltage	V_{GS}	± 20			
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^{a, b}	I_D	$T_A = 25^\circ\text{C}$	-0.49	-0.38	A
		$T_A = 70^\circ\text{C}$	-0.39	-0.31	
Pulsed Drain Current	I_{DM}	-1.0			
Continuous Source Current (Diode Conduction) ^{a, b}	I_S	-1.0	-0.6		
Single-Pulse Avalanche Current	$L = 1.0$ mH	I_{AS}	4.0		
Single-Pulse Avalanche Energy			E_{AS}	0.8	
Maximum Power Dissipation ^{a, b}	P_D	$T_A = 25^\circ\text{C}$	1.25	0.75	W
		$T_A = 70^\circ\text{C}$	0.8	0.48	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150		$^\circ\text{C}$	

THERMAL RESISTANCE RATINGS					
Parameter	Symbol	Typical	Maximum	Unit	
Maximum Junction-to-Ambient ^a	R_{thJA}	$t \leq 5$ sec	75	100	$^\circ\text{C/W}$
		Steady State	120	166	
Maximum Junction-to-Foot (Drain)	R_{thJF}	40	50		

Notes

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



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SPECIFICATIONS (T _J = 25 °C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = -250 μA	-200			V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 μA	-2.5		-4.5	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -200 V, V _{GS} = 0 V			-1	μA
		V _{DS} = -200 V, V _{GS} = 0 V, T _J = 55 °C			-10	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≤ -15 V, V _{GS} = 10 V	-1.0			A
Drain-Source On-Resistance ^a	r _{DS(on)}	V _{GS} = -10 V, I _D = -0.5 A		1.9	2.35	Ω
		V _{GS} = -6.0 V, I _D = -0.5 A		1.96	2.45	
Forward Transconductance ^a	g _{fs}	V _{DS} = -15 V, I _D = -0.5 A		1.8		S
Diode Forward Voltage	V _{SD}	I _S = -1.0 A, V _{GS} = 0 V		0.85	-1.2	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = -100 V, V _{GS} = 10 V I _D ≅ -0.5 A		8.0	12	nC
Gate-Source Charge	Q _{gs}			1.3		
Gate-Drain Charge	Q _{gd}			2.5		
Gate Resistance	R _g	f = 1.0 MHz		8.0		Ω
Input Capacitance	C _{iss}	V _{DS} = -25 V, V _{GS} = 0, f = 1 MHz		340	510	pF
Output Capacitance	C _{oss}			25		
Reverse Transfer Capacitance	C _{rss}			14		
Switching^c						
Turn-On Time	t _{d(on)}	V _{DD} = -100 V, R _L = 100 Ω I _D ≅ -1.0 A, V _{GEN} = -10 V R _g = 6 Ω		8	12	ns
	t _r			11	17	
Turn-Off Time	t _{d(off)}			16	25	
	t _f			11	17	
Body Diode Reverse Recovery Charge	Q _{rr}	I _F = 0.5 A, di/dt = 100 A/μs		140	200	nC

Notes

- a. Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.
- b. For DESIGN AID ONLY, not subject to production testing.
- c. Switching time is essentially independent of operating temperature.