



SQ2348ES

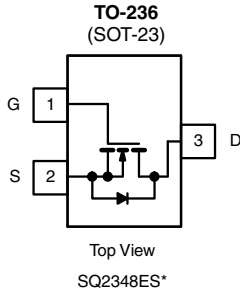


RoHS
COMPLIANT
HALOGEN
FREE

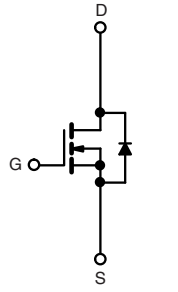
PRODUCT SUMMARY	
V _{DS} (V)	30
R _{DS(on)} (Ω) at V _{GS} = 10 V	0.024
R _{DS(on)} (Ω) at V _{GS} = 4.5 V	0.032
I _D (A)	8
Configuration	Single

FEATURES

- TrenchFET® Power MOSFET
- AEC-Q101 Qualified^c
- 100 % R_g and UIS Tested
- Material categorization:
For definitions of compliance please see www.twtysemi.com



* Marking Code: 8Gxxx



ORDERING INFORMATION	
Package	SOT-23
Lead (Pb)-free and Halogen-free	SQ2348ES-T1-GE3

ABSOLUTE MAXIMUM RATINGS (T _C = 25 °C, unless otherwise noted)			
PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GS}	± 20	
Continuous Drain Current	I _D	T _C = 25 °C	8
		T _C = 125 °C	5.3
Continuous Source Current (Diode Conduction)	I _S	3.8	A
Pulsed Drain Current ^a	I _{DM}	32	
Single Pulse Avalanche Current	I _{AS}	15.5	
Single Pulse Avalanche Energy	E _{AS}	12	mJ
Maximum Power Dissipation ^a	P _D	T _C = 25 °C	3
		T _C = 125 °C	1
Operating Junction and Storage Temperature Range	T _J , T _{stg}	- 55 to + 175	°C

THERMAL RESISTANCE RATINGS			
PARAMETER	SYMBOL	LIMIT	UNIT
Junction-to-Ambient	R _{thJA}	166	°C/W
Junction-to-Foot (Drain)	R _{thJF}	50	

Notes

- Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2 %.
- When mounted on 1" square PCB (FR-4 material).
- Parametric verification ongoing.



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SPECIFICATIONS ($T_C = 25\text{ }^\circ\text{C}$, unless otherwise noted)							
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT	
Static							
Drain-Source Breakdown Voltage	V_{DS}	$V_{GS} = 0\text{ V}, I_D = 250\text{ }\mu\text{A}$	30	-	-	V	
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	1.5	2.0	2.5		
Gate-Source Leakage	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$	-	-	± 100	nA	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{GS} = 0\text{ V}$	$V_{DS} = 30\text{ V}$	-	-	1	μA
		$V_{GS} = 0\text{ V}$	$V_{DS} = 30\text{ V}, T_J = 125\text{ }^\circ\text{C}$	-	-	50	
		$V_{GS} = 0\text{ V}$	$V_{DS} = 30\text{ V}, T_J = 175\text{ }^\circ\text{C}$	-	-	150	
On-State Drain Current ^a	$I_{D(on)}$	$V_{GS} = 10\text{ V}$	$V_{DS} \geq 5\text{ V}$	10	-	A	
Drain-Source On-State Resistance ^a	$R_{DS(on)}$	$V_{GS} = 10\text{ V}$	$I_D = 12\text{ A}$	-	0.020	0.024	Ω
		$V_{GS} = 10\text{ V}$	$I_D = 12\text{ A}, T_J = 125\text{ }^\circ\text{C}$	-	-	0.036	
		$V_{GS} = 10\text{ V}$	$I_D = 12\text{ A}, T_J = 175\text{ }^\circ\text{C}$	-	-	0.042	
		$V_{GS} = 4.5\text{ V}$	$I_D = 8\text{ A}$	-	0.026	0.032	
Forward Transconductance ^b	g_{fs}	$V_{DS} = 15\text{ V}, I_D = 3\text{ A}$		-	10	S	
Dynamic^b							
Input Capacitance	C_{iss}	$V_{GS} = 0\text{ V}$	$V_{DS} = 15\text{ V}, f = 1\text{ MHz}$	-	430	540	pF
Output Capacitance	C_{oss}			-	100	125	
Reverse Transfer Capacitance	C_{rss}			-	40	50	
Total Gate Charge ^c	Q_g	$V_{GS} = 10\text{ V}$	$V_{DS} = 15\text{ V}, I_D = 5.5\text{ A}$	-	7.95	14.5	nC
Gate-Source Charge ^c	Q_{gs}			-	1.6	-	
Gate-Drain Charge ^c	Q_{gd}			-	1.3	-	
Gate Resistance	R_g	f = 1 MHz		8.65	17.3	27	Ω
Turn-On Delay Time ^c	$t_{d(on)}$	$V_{DD} = 15\text{ V}, R_L = 3.4\text{ }\Omega$ $I_D \cong 4.4\text{ A}, V_{GEN} = 10\text{ V}, R_g = 1\text{ }\Omega$		-	4.5	7	ns
Rise Time ^c	t_r			-	8	12	
Turn-Off Delay Time ^c	$t_{d(off)}$			-	21	32	
Fall Time ^c	t_f			-	6	9	
Source-Drain Diode Ratings and Characteristics^b							
Pulsed Current ^a	I_{SM}			-	-	32	A
Forward Voltage	V_{SD}	$I_F = 3.5\text{ A}, V_{GS} = 0\text{ V}$		-	0.8	1.2	V

Notes

- a. Pulse test; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.
- b. Guaranteed by design, not subject to production testing.
- c. Independent of operating temperature.