



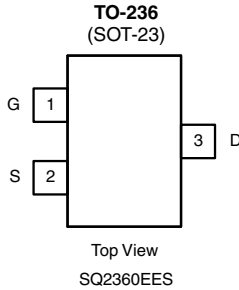
# SQ2360EES



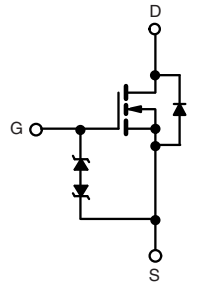
PRODUCT SUMMARY	
V <sub>DS</sub> (V)	60
R <sub>DS(on)</sub> (Ω) at V <sub>GS</sub> = 10 V	0.085
R <sub>DS(on)</sub> (Ω) at V <sub>GS</sub> = 4.5 V	0.130
I <sub>D</sub> (A)	4.4
Configuration	Single

## FEATURES

- Halogen-free According to IEC 61249-2-21 Definition
- TrenchFET® Power MOSFET
- AEC-Q101 Qualified<sup>c</sup>
- 100 % R<sub>G</sub> and UIS Tested
- Typical ESD Protection 800 V
- Compliant to RoHS Directive 2002/95/EC



Marking Code: 8Mxxx



ORDERING INFORMATION	
Package	SOT-23
Lead (Pb)-free and Halogen-free	SQ2360EES-T1-GE3

ABSOLUTE MAXIMUM RATINGS (T <sub>C</sub> = 25 °C, unless otherwise noted)			
PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V <sub>DS</sub>	60	V
Gate-Source Voltage	V <sub>GS</sub>	± 20	
Continuous Drain Current	I <sub>D</sub>	T <sub>C</sub> = 25 °C	4.4
		T <sub>C</sub> = 125 °C	2.5
Continuous Source Current (Diode Conduction)	I <sub>S</sub>	3.7	A
Pulsed Drain Current <sup>a</sup>	I <sub>DM</sub>	17	mJ
Single Pulse Avalanche Current	I <sub>AS</sub>	6	
Single Pulse Avalanche Energy			
Maximum Power Dissipation <sup>a</sup>	P <sub>D</sub>	T <sub>C</sub> = 25 °C	3
		T <sub>C</sub> = 125 °C	1
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	- 55 to + 175	°C

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

### Notes

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



**SQ2360EES**

<b>SPECIFICATIONS</b> ( $T_C = 25\text{ }^\circ\text{C}$ , unless otherwise noted)							
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT	
<b>Static</b>							
Drain-Source Breakdown Voltage	$V_{DS}$	$V_{GS} = 0, I_D = 250\text{ }\mu\text{A}$	60	-	-	V	
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	1.5	-	2.5		
Gate-Source Leakage	$I_{GSS}$	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$	-	-	$\pm 5.5$	$\mu\text{A}$	
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{GS} = 0\text{ V}$	$V_{DS} = 60\text{ V}$	-	-	1	$\mu\text{A}$
		$V_{GS} = 0\text{ V}$	$V_{DS} = 60\text{ V}, T_J = 125\text{ }^\circ\text{C}$	-	-	50	
		$V_{GS} = 0\text{ V}$	$V_{DS} = 60\text{ V}, T_J = 175\text{ }^\circ\text{C}$	-	-	150	
On-State Drain Current <sup>a</sup>	$I_{D(on)}$	$V_{GS} = 10\text{ V}$	$V_{DS} \geq 5\text{ V}$	10	-	A	
Drain-Source On-State Resistance <sup>a</sup>	$R_{DS(on)}$	$V_{GS} = 10\text{ V}$	$I_D = 6\text{ A}, T_J = 25\text{ }^\circ\text{C}$	-	0.058	0.085	$\Omega$
		$V_{GS} = 10\text{ V}$	$I_D = 6\text{ A}, T_J = 125\text{ }^\circ\text{C}$	-	-	0.197	$\Omega$
		$V_{GS} = 10\text{ V}$	$I_D = 6\text{ A}, T_J = 175\text{ }^\circ\text{C}$	-	-	0.258	
		$V_{GS} = 4.5\text{ V}$	$I_D = 5\text{ A}$	-	0.081	0.130	
Forward Transconductance <sup>b</sup>	$g_{fs}$	$V_{DS} = -15\text{ V}, I_D = 1.9\text{ A}$		-	5.8	S	
<b>Dynamic<sup>b</sup></b>							
Input Capacitance	$C_{iss}$	$V_{GS} = 0\text{ V}$	$V_{DS} = 25\text{ V}, f = 1\text{ MHz}$	-	295	370	$\mu\text{F}$
Output Capacitance	$C_{oss}$			-	55	70	
Reverse Transfer Capacitance	$C_{rss}$			-	35	55	
Total Gate Charge <sup>c</sup>	$Q_g$	$V_{GS} = 10\text{ V}$	$V_{DS} = 30\text{ V}, I_D = 2\text{ A}$	-	7.40	12	nC
Gate-Source Charge <sup>c</sup>	$Q_{gs}$			-	0.95	-	
Gate-Drain Charge <sup>c</sup>	$Q_{gd}$			-	1.94	-	
Gate Resistance	$R_g$	$f = 1\text{ MHz}$		1.24	2.46	3.68	$\Omega$
Turn-On Delay Time <sup>c</sup>	$t_{d(on)}$	$V_{DD} = 30\text{ V}, R_L = 15\text{ }\Omega$ $I_D \cong 2\text{ A}, V_{GEN} = 10\text{ V}, R_g = 1\text{ }\Omega$	-	5	8	ns	
Rise Time <sup>c</sup>	$t_r$		-	11	17		
Turn-Off Delay Time <sup>c</sup>	$t_{d(off)}$		-	10	15		
Fall Time <sup>c</sup>	$t_f$		-	8	12		
<b>Source-Drain Diode Ratings and Characteristics<sup>b</sup></b>							
Pulsed Current <sup>a</sup>	$I_{SM}$			-	-	17	A
Forward Voltage	$V_{SD}$	$I_F = 1.5\text{ A}, V_{GS} = 0$		-	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.