

Product Termination Notification

Product Group: SIL/Thu May 20, 2021/PTN-SIL-013-2021-REV-0

Conversion to Cu Wire - SQS401EN

DESCRIPTION OF CHANGE: The affected part number listed in this notification has been approved for termination. The recommended replacement part is the SQS411ENW-T1_GE3. This device offers a closely matched solution and provides some beneficial features compared to the SQS401EN-T1_GE3. These include an upgrade to the latest Cu wire material set and pins with wet-able flanks. This feature promotes improved solder coverage and solder filet shape at the lead tips. The outer most dimensions are unchanged and the same PCB land pattern is required. The SQS411ENW-T1_GE3 uses our mature 1G P-Channel MOSFET technology from the same wafer fab and is assembled in the same facility as the SQS401EN-T1_GE3. A side by side comparison of the data sheet specifications is included with this notification.

REASON FOR CHANGE: Standardization of materials

EXPECTED INFLUENCE ON QUALITY/RELIABILTY/PERFORMANCE: None

PART NUMBERS/SERIES/FAMILIES AFFECTED: SQS401EN-T1_GE3

VISHAY BRAND(s): Vishay Siliconix

TIME SCHEDULE:

Last Time Buy Date: Wed Nov 17, 2021 Last Time Ship Date: Mon May 16, 2022

SAMPLE AVAILABILITY: Qualified samples of replacement product are available immediately

PRODUCT IDENTIFICATION: SQS411ENW-T1_GE3

QUALIFICATION DATA: AEC Q101 qualification data of replacement product is available. Qualification PPAP is available now.

This PTN is considered approved, without further notification, unless we receive specific customer concerns before Fri Nov 25, 2022 or as specified by contract.

ISSUED BY: Lance Gurrola, Lance.Gurrola@vishay.com

For further information, please contact your regional Vishay office.

CONTACT INFORMATION:

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Affected Part Number
AEC Q101 Qualified
Package Type
Process Technology
090M cells/in²
Ves
Datasheet Rev
C/ A

				Units
Absolute Maxium Ratings	Symbol	Test Conditions	Limit	
Drain-Source Voltage	VDS		-40	V
Gate-Source Voltage	VGS		±20	V
Continuous Drain Current	ID	TC = 25°C	-16	A
Continuous Drain Current	ID	TC = 125°C	-16	A
Continuous Source Current (Diode Conduction)	IS		-16	A
Pulsed Drain Current	IDM		-64	A
Single Pulse Avalanche Current	IAS	I = 0.1mH	-26	A
Single Pulse Avalanche Energy	EAS	L = U.IMH	33.8	mJ
Max Power Dissipation	PD	TC = 25°C	62.5	w
Max Power Dissipation	PD	TC = 125°C	20	w
Opetating Junction	TJ		-55 to +175	°C
Thermal Resistance J A	RthJA	PCB Mount	81	°C/W
Thermal Resistance J-C	RthJC		2.4	°C/W

Specifications TJ=25°C unless otherwise noted		Test (Conditions	MIN	TYP	MAX	Units
Drain-Source Breakdown Voltage	VDS	VGS=0\	V, ID=250uA	-40			٧
Gate-Source Threshold Voltage	VGS(th)	VDS=VG	SS, ID=250uA	-1.5	-2	-2.5	V
Gate -Source Leakage	IGSS	VDS=0V	/, VGS=±20V			±100	nA
		VGS=0V	VDS=-40V			-1	uA
Zero Voltage Drain Current	IDSS	VGS=0V	VDS=-40V, Tj=125°C			-50	uA
		VGS=0V	VDS=-40V, Tj=125°C			-150	uA
On-State Drain Current	ID(ON)	VGS=-10V	VDS≥5V	-20			A
		VGS=-10V	ID=-12A		0.020	0.029	Ω
Drain-Source On-State Resistance	RDS(on)	VGS=-10V	ID=-12A, Tj=125°C		0.030	0.043	Ω
Dialit-Source Oir-state Resistance	KD3(011)	VGS=-10V	ID=-12A, Tj=175°C		0.040	0.051	Ω
		VGS=-4.5V	ID=-9A		0.035	0.047	Ω
Forward Transconductance	gfs	VDS=-1	15V, ID=-7A		12		s
Input Capacitance	Ciss				1565	1875	
Output Capacitance	Coss	VGS=0V	VDS=-20V, f=1MHz		245	295	pF
Reverse Transfer Capacitance	Crss				170	205	
Total Gate Charge	Qg	VGS=-4 5V	VDS=-20V. ID=-9.3A		17.7	21.2	nC
Gate-Source Charge	Qgs	VG3=-4.3V	VD320V, ID9.3A		5.6	6.6	IIC.
Gate-Drain Charge	Qgd				8.1	9.7	
Gate Resistance	Rg	f=	=1mHz	1.1	1.95	2.8	Ω
Turn-On Delay Time	td(on)				11	14	
Rise Time	tr	VDD- 2014 BL-14 20 1	D=-1.4A, Vgen=-10V, Rg=1Ω		10	13	ns
Turn-Off Delay Time	td(off)	VDD=-20V, KL=14.211, I	D=-1.4A, Vgen=-10V, Rg=111		36.5	44	ns
Fall Time	tf				10.2	13	
Pulsed Source-Drain Current	ISM					-64	А
Forward Voltage	VSD	If=8.8	IA VGS=0V		-0.8	-1.1	V
Body diode reverse recovery time	trr						ns
Body diode reverse recovery charge	Qrr	L=4 4A 6	di/dt=100A/us				nC
Reverse recovery fall time	ta	1,-4,-47, 0	-,,				ns
Reverse recovery rise time	tb						ns
Body diode peak reverse recovery current	I _{RM(REC)}						А

 Replacement Part Number
 SQS411ENW

 AEC Q101 Qualified
 Yes

 Package Type
 PPAK 1212

 Process Technology
 1G cells/in²

 100% Rg and UIS Tested
 Yes

 Datasheet Rev
 B

Symbol	Test Conditions	Limit	Units
VDS		-40	V
VGS		±20	V
ID	TC = 25°C	-16	A
ID	TC = 125°C	-16	A
IS		-16	A
IDM		-64	A
IAS	L = 0.1mH	-19	A
EAS	L = U.IMM	18	mJ
PD	TC = 25°C	53.6	W
PD	TC = 125°C	18	W
TJ		-55 to +175	°C
RthJA	PCB Mount	81	°C/W
RthJC		2.8	°C/W

	Test (Conditions	MIN	TYP	MAX	Units

VDS	VGS=0V	, ID=250uA	-40			V
VGS(th)	VDS=VG	S, ID=250uA	-1.5	-2	-2.5	v
IGSS	VDS=0V	, VGS=±20V			±100	nA
	VGS=0V	VDS=60V			1	uA
IDSS	VGS=0V	VDS=60V, Tj=125°C			50	uA
	VGS=0V	VDS=60V, Tj=125°C			150	uA
ID(ON)	VGS=-10V	VDS≥-5V	-20			A
	VGS=-10V	ID=-8A		0.021	0.027	Ω
	VGS=-10V	ID=-8A, Tj=125°C			0.0405	Ω
RDS(on)	VGS=-10V	ID=-8A, Tj=175°C			0.048	Ω
	VGS=-4.5V	ID=-6A		0.029	0.038	Ω
gfs	VDS=-1	5V. ID=-7A		23		s
Ciss				2455	3191	pF
Coss	VGS=0V	VDS=-25V, f=1MHz		157	205	
Crss				187	228	
Qg		VDS=-20V, ID=-2.5A		38	50	nC
Ogs	VGS=-10V			6	8	
Qgd				7	10	
Rg	f=	1mHz	2.5	4.2	6.7	Ω
td(on)				10.5	13.7	
tr				3	3.9	
td(off)	VDD=-20V, RL=14.3Ω, II	D=-1.4A, Vgen=-10V, Rg=1Ω		39.6	51.5	ns
tf				6.4	8.4	
ISM					-64	А
VSD	I ₀ =-8 <i>i</i>	VGS=0V		-0.8	-1.2	٧
trr						ns
Qrr	1					nC
	I _F =4.4A, c	i/dt=100A/us				
ta	-					ns
tb						ns
RM(REC)						A

Type of Change	Risk
lone	None
ower	None, value above rated current of -16A
ower	At max current of -16A energy capability is the same.
ower	None, lower Rds(on) will compensate
ower	None
lone	None
lone	None
lone	None

Type of Change	Risk
None	None
Lower	None
Higher	None
Changed	Very low. Switching speeds are not impacted
Changed	None
Changed	Very low. Switching speeds are not impacted
At -4.5V = 18nC	
typ	None
Changed	None
Changed	None
Changed	Very low. Switching speeds are not impacted
Changed	None
None	None
Changed	None