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Product Termination Notification



Product Group: SIL/Wed Mar 1, 2023/PTN-SIL-012-2023-REV-0

Conversion to Copper (Cu) Wire – SQS405ENW-T1_GE3

For further information, please contact your regional Vishay office.

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Description of Change: The affected part number listed in this notification will be converted to a Copper wire material set. The SQS405CENW-T1_GE3 replaces the SQS405ENW-T1_GE3 and offers a long-term solution that is compatible with our latest package assembly methods. This silicon die uses exactly the same technology, process and "in-house" wafer fabrication facility as the existing parts. Any minor specification changes (documented in the comparison sheets provided) reflect small lot to lot variations and improvements that have occurred over time since the original parts were released more than ten years ago. No final test limits have been changed apart from the avalanche test. In this case we have adopted new consistency rules whereby we test at or below the maximum rated current for the device which is -16A. Previously this test was performed at -19A in violation of the maximum rated current.

Classification of Change: Standardization of materials

Expected Influence on Quality/Reliability/Performance: None

Part Numbers/Series/Families Affected: SQS405ENW-T1_GE3

Vishay Brand(S): Vishay Siliconix

Time Schedule:

Last Time Buy Date: Sun Sep 3, 2023

Last Time Ship Date: Sun Mar 3, 2024

Sample Availability: Qualified samples of replacement product are available immediately

Product Identification: SQS405CENW-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 Thu Aug 31, 2023 or as specified by contract.

Issued By: Vishay Siliconix, business-america@vishay.com

Affected Part Number				Replacement Part Number						
SOS405ENW				SOS405CENW						
AEC Q101 Qualified				AEC Q101 Qualified						
Yes				Yes						
Package Type				Package Type						
PPAK 1212-8W				PPAK 1212-8W						
Process Technology				Process Technology						
90M cells/in ²				90M cells/in ²						
Bondwire Material				Bondwire Material						
Gold (Au)				Copper (Cu)						
100% Rg & UIS Tested				100% Rg and UIS Tested						
Yes				Yes						
Datasheet Rev				Datasheet Rev						
C				B						
Absolute Maximum Ratings										
Symbol	Test Conditions	Limit	Units	Symbol	Test Conditions	Limit	Units	Type of Change	Risk	
VDS		-12	V	VDS		-12	V	None	None	
VGS		±8	V	VGS		±8	V	None	None	
ID	TC = 25°C	-16	A	ID	TC = 25°C	-16	A	None	None	
ID	TC = 125°C	-16	A	ID	TC = 125°C	-16	A	None	None	
IS		-16	A	IS		-16	A	None	None	
IDM		-64	A	IDM		-64	A	None	None	
IAS	L = 0.1mH	-19	A	IAS	L = 0.1mH	-16	A	Reduction	None	
IAS		18	mA	IAS		22.8	mA	Reduction	None	
PD	TC = 25°C	39	W	PD	TC = 25°C	39	W	None	None	
PD	TC = 125°C	13	W	PD	TC = 125°C	13	W	None	None	
TJ		-55 to +175	°C	TJ		-55 to +175	°C	None	None	
RthJA	PCB Mount	81	°C/W	RthJA	PCB Mount	81	°C/W	None	None	
RthJC		3.8	°C/W	RthJC		3.8	°C/W	None	None	
Soldering recommendations (peak temperature)				260				Was not there		
Specifications Tj=25°C unless otherwise noted										
	Test Conditions	MIN	TYP	MAX	Units			Type of Change	Risk	
VDS	VGS=0V, ID=250uA	-12			V			None	None	
VGS(th)	VDS=VGS, ID=250uA	-0.45	-0.6	-1	V			None	None	
ISS	VDS=0V, VGS=±8V			±100	nA			None	None	
Zero Voltage Drain Current	VGS=0V			-1	uA			None	None	
	VGS=0V			-50	uA			None	None	
	VGS=0V			-150	uA			None	None	
ID(ON)	VGS=4.5V	-20			A			None	None	
Drain-Source On-State Resistance	VGS=4.5V	0.014	0.020		Ω			Improvement	None	
	VGS=4.5V			0.026	Ω			Improvement	None	
	VGS=4.5V			0.023	Ω			Improvement	None	
	VGS=2.5V			0.026	Ω			Improvement	None	
gfs	VDS=6V, ID=13.5A		34		S			These small parametric changes reflect the latest characterization methods and are subject to lot-to-lot variations. No final test limits have been changed.	None	
Ciss		2210	2650		pF					
Coss	VGS=0V	840	1010		pF					
Crrs		660	800		pF					
Qg	VGS=8V	3.8	5.9		nC					
Qgs		8.2	15		nC					
Qgd					nC					
Rg	f=1MHz	1.1	2.37	4	Ω			Test limit re-centered based on latest characterization methods. No changes to the silicon design and process	None	
td(on)	VDD=6V, RL=6Ω, ID=1.5A, Vgsw=4.5V, Rg=1Ω	27	34.5		ns			No actual change to the device only test condition standardized	None	
tr		29	35		ns					
td(off)		59	72		ns					
tf		26	32		ns					
ISM				-64	A			None	None	
VSD	Ij=10A VGS=0V	-0.8	-1.1		V			None	None	
trr				44	ns			Additional characterization data not previously documented	None	
Qrr				32	nC					
tr	Ij=5A, di/dt=100A/us			22	ns					
tr				22	ns					
tr				22	ns					
tr				22	ns					
tr				-1.2	A					