



## Product Obsolescence - SQJ912AEP

**DESCRIPTION OF CHANGE:** The affected part number listed in this notification has been approved for termination. The recommended replacement part is the SQJ912DEP-T1\_GE3. This device offers a closely matched solution and an upgrade to our 530 SG N-Channel MOSFET technology from the same wafer fab and is assembled in the same facility as the SQJ912AEP-T1\_GE3.

**REASON FOR CHANGE:** Standardization of materials

**EXPECTED INFLUENCE ON QUALITY/RELIABILITY/PERFORMANCE:** None

**PART NUMBERS/SERIES/FAMILIES AFFECTED:** SQJ912AEP-T1\_GE3, SQJ912AEP-T2\_GE3, SQJ912AEP-T1\_BE3,

**VISHAY BRAND(s):** Vishay Siliconix

**TIME SCHEDULE:**

Last Time Buy Date: Mon Jan 10, 2022

Last Time Ship Date: Fri Jul 15, 2022

**SAMPLE AVAILABILITY:** Qualified samples of replacement product are available immediately

**PRODUCT IDENTIFICATION:** SQJ912DEP-T1\_GE3

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

**This PCN is considered approved, without further notification, unless we receive specific customer concerns before Mon Jan 10, 2022 or as specified by contract.**

**ISSUED BY:** Lance Gurrola, business-americas@vishay.com

**For further information, please contact your regional Vishay office.**

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Affected Part Number				Replacement Part Number			
AEC Q101 Qualified				AEC Q101 Qualified			
Package Type				Package Type			
Process Technology				Process Technology			
100% Rg & US Tested				100% Rg and US Tested			
Datasheet Rev				Datasheet Rev			
SQJ9124EP				SQJ912DEP			
Yes				Yes			
PowerPAK SO-8L				PowerPAK SO-8L			
300M cells/in <sup>2</sup>				530M cells/in <sup>2</sup>			
Yes				Yes			
A				A			

  

Symbol	Test Conditions	Limit	Units	Symbol	Test Conditions	Limit	Units	Type of Change	Risk
VDS		40	V	VDS		40	V	None	None
VGS	TC = 25°C	±20	V	VGS		±20	V	None	None
ID	TC = 25°C	30	A	ID	TC = 25°C	30	A	None	None
ID	TC = 125°C	26	A	ID	TC = 125°C	26	A	Lower	None
IS		25	A	IS		25	A	None	None
IDM		120	A	IDM		120	A	None	None
IAS	L = 0.1mH	26	A	IAS	L = 0.1mH	19	A	Lower	None unless part exposed to high current over voltage events
EAS		34	mJ	EAS		18	mJ	Lower	None unless part exposed to high energy over voltage events
PD	TC = 25°C	48	W	PD	TC = 25°C	27	W	Lower	Very low. Quoted Pd is not a practical value in most designs
PD	TC = 125°C	16	W	PD	TC = 125°C	9	W	Lower	Very low. Quoted Pd is not a practical value in most designs
TJ		-55 to +175	°C	TJ		-55 to +175	°C	None	None
RthJA	PCB Mount	85	°C/W	RthJA	PCB Mount	85	°C/W	None	None
RthJC		3.1	°C/W	RthJC		5.5	°C/W	Higher	Low. Lower Rds(on) will compensate

  

Specifications Tj=25°C unless otherwise noted	Test Conditions	MIN	TYP	MAX	Units	Symbol	Test Conditions	MIN	TYP	MAX	Units	Type of Change	Risk
Drain-Source Breakdown Voltage	VGS=0V, ID=250uA	40			V	VDS	VGS=0V, ID=250uA	40			V	None	None
Gate-Source Threshold Voltage	VDS=VGS, ID=250uA	1.5	2	2.5	V	VGS(th)	VDS=VGS, ID=250uA	1.5	2	2.5	V	None	None
Gate-Source Leakage	VDS=0V, VGS=±20V			±100	nA	IGSS	VDS=0V, VGS=±20V			±100	nA	None	None
Zero Voltage Drain Current	VGS=0V, VDS=40V, Tj=125°C			1	uA	IDSS	VGS=0V, VDS=40V, Tj=125°C			1	uA	None	None
	VGS=0V, VDS=40V, Tj=175°C			50	uA		VGS=0V, VDS=60V, Tj=125°C			50	uA	None	None
On-State Drain Current	VGS=10V, VDS=5V	30			A	ID(on)	VGS=10V, VDS=5V	15			A	None	None
Drain-Source On-State Resistance	VGS=10V, ID=9.7A, Tj=125°C	0.0077	0.0093		Ω	RDS(on)	VGS=10V, ID=9.7A, Tj=125°C	0.0059	0.0073		Ω	Lower	None
	VGS=10V, ID=9.7A, Tj=175°C		0.0138		Ω		VGS=10V, ID=7A, Tj=125°C		0.0106		Ω	Lower	None
	VGS=10V, ID=9.7A, Tj=175°C		0.0169		Ω		VGS=10V, ID=7A, Tj=175°C		0.0125		Ω	Lower	None
	VGS=4.5V, ID=9.9A	0.0093	0.0111		Ω		VGS=4.5V, ID=5A	0.0082	0.0102		Ω	Lower	None
Forward Transconductance	VDS=15V, ID=10A	58			S	gfs	VDS=15V, ID=7A	47			S	Lower	None. Values are too close to have an impact. Compare Qg
Input Capacitance		1438	1835		pF	Ciss		1246	1745		pF	Lower	None. Non-linear characteristic. No overall impact. Compare Qg
Output Capacitance	VGS=0V, VDS=20V, f=1MHz	217	271		pF	Coss	VGS=0V, VDS=25V, f=1MHz	346	483		pF	Higher	None. Non-linear characteristic. No overall impact. Compare Qgd
Reverse Transfer Capacitance	VGS=10V, VDS=20V, ID=11.3A	91	114		pF	Crss	VGS=10V, VDS=20V, ID=11.3A	31	44		pF	Lower	None. Non-linear characteristic. No overall impact. Compare Qgd
Total Gate Charge	VGS=10V, VDS=20V, ID=11.3A	25.6	38		nC	Qg	VGS=10V, VDS=20V, ID=11.3A	24	36		nC	Lower	None
Gate-Source Charge		4			nC	Qgs		5			nC	Higher	None
Gate-Drain Charge		4			nC	Qgd		5			nC	Higher	None
Gate Resistance	F=1MHz	0.72	1.44	2.2	Ω	Rg	F=1MHz	1.4	2.8	4.2	Ω	Higher	Very low. Switching speeds are very similar with 10ns impact on tr
Turn-On Delay Time		10	15		ns	td(on)		10	20		ns	Higher	None. Switching speeds are not impacted
Rise Time	VDD=20V, RL=200, ID=1A, Vgen=10V, Rg=10	9	14		ns	tr	VDD=20V, RL=200, ID=1A, Vgen=10V, Rg=10	4	10		ns	Lower	None. Switching speeds are not impacted
Turn-Off Delay Time		23	35		ns	td(off)		25	50		ns	Higher	None. Switching speeds are not impacted
Fall Time		11	17		ns	tf		21	35		ns	Higher	Very low. 10ns impact will not affect applications < 500kHz
Pulsed Source-Drain Current	IF=6.5A VGS=0V	0.8	1.1		A	ISM	Ic=7A VGS=0V	0.79	1.2		A	None	None
Forward Voltage					V	VSD		25	50		V	Changed	None
Body diode reverse recovery time					ns	trr		16	32		ns	Additional data	Not on previous data sheet
Body diode reverse recovery charge					nC	Qrr		11	22		nC	Additional data	Not on previous data sheet
Reverse recovery fall time	Ic=6.5A, di/dt=100A/us				ns	ta	Ic=4A, di/dt=100A/us	11	22		ns	Additional data	Not on previous data sheet
Reverse recovery rise time					ns	tb		14	28		ns	Additional data	Not on previous data sheet
Body diode peak reverse recovery current					A	Irrm(sic)		-1.1			A	Additional data	Not on previous data sheet