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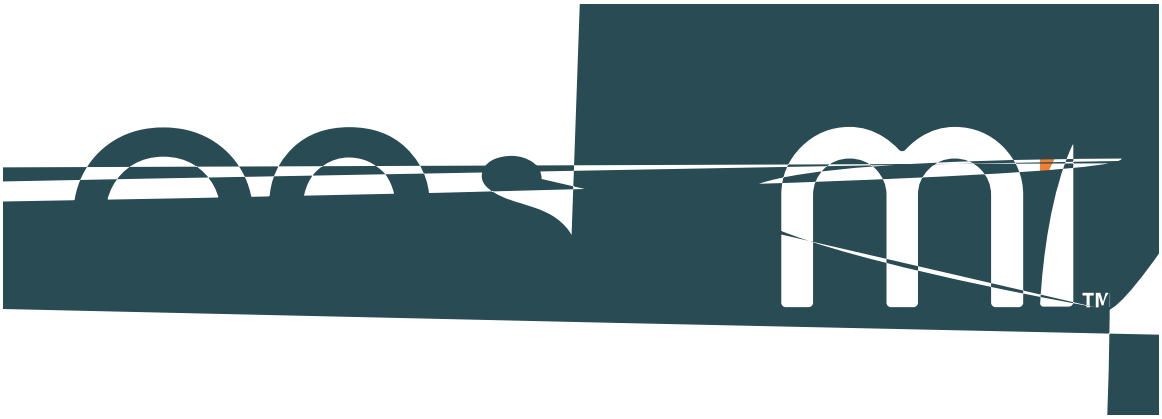

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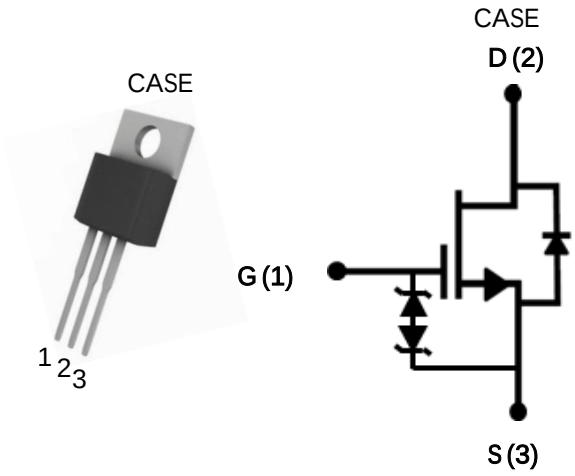
DATASHEET

UJ3C065080T3S

Silicon Carbide (SiC) Cascode JFET - EliteSiC, Power N-Channel, TO-220-3L, 650 V, 80 mohm

Rev. E, Janauary 2025



Part Number	Package	Marking
UJ3C065080T3S	TO-220-3L	UJ3C065080T3S

Description

This SiC FET device is based on a unique ìcascodeî circuit configuration, in which a normally-on SiC JFET is co-packaged with a Si MOSFET to produce a normally-off SiC FET device. The deviceîs standard gate-drive characteristics allows for a true Ìdrop-in replacementî to Si IGBTs, Si FETs, SiC MOSFETs or Si superjunction devices. Available in the TO-220-3L package, this device exhibits ultra-low gate charge and exceptional reverse recovery characteristics, making it ideal for switching inductive loads , and any application requiring standard gate drive.

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Maximum Ratings

Parameter	Symbol	Test Conditions	Value	Units
Drain-source voltage	V_{DS}		650	V
Gate-source voltage	V_{GS}	DC	-25 to +25	V
Continuous drain current [1]	I_D	T_C = 25°C	31	A
		T_C = 100°C	23	A
Pulsed drain current [2]	I_{DM}	T_C = 25°C	65	A
Single pulsed avalanche energy [3]	E_{AS}	L=15mH, I_{AS} =2.1A	33	mJ
Power dissipation	P_{tot}	T_C = 25°C	190	W
Maximum junction temperature	$T_{J,max}$		175	°C
Operating and storage temperature	T_J, T_{STG}		-55 to 175	°C
Max. lead temperature for soldering, 1/8ĩ from case for 5 seconds	T_L		250	°C

1. Limited by $T_{J,max}$
2. Pulse width t_p limited by $T_{J,max}$
3. Starting T_J = 25°C

Thermal Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
	R_q			0.61	0.79	°C/W

Related Devices

Spice Models

Typical Performance - Dynamic

	Min	Typ	Max
C_{iss}			

Typical Performance Diagrams

Figure 1. Typical output characteristics at T_J = - 55°C, tp < 250mS

Figure 2. Typical output characteristics at T_J = 25°C, tp < 250mS

Figure 3. Typical output characteristics at T_J = 175°C, tp < 250mS

Figure 4. Normalized on-resistance vs. temperature at V_{GS} = 12V and I_D = 20A

Figure 13. Typical capacitances at f = 100kHz and V_{GS} = 0V

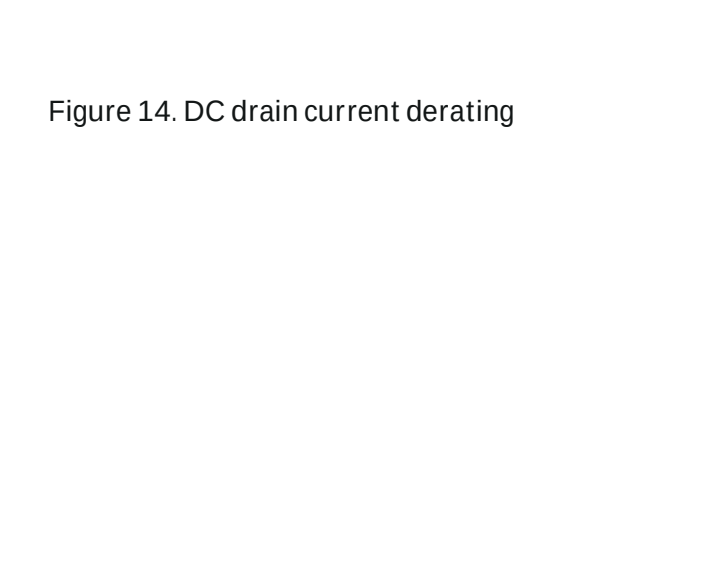

Figure 14. DC drain current derating

TO-220-3L PACKAGE OUTLINE, PART MARKING AND TUBE SPECIFICATIONS

PART MARKING

PACKING TYPE

ANTI-STATIC TUBE

QUANTITY /TUBE : 50 UNITS

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