



Product Overview

H3S065A006 / H3S065T006 / H3S065U006

FEATURES

- Low Conduction and Switching Loss
- Zero Reverse Recovery
- Temperature Independent Switching Behavior
- Positive Temperature Coefficient Device
- High Surge Current Capability
- Suitable for High Power Application
- AEC-Q101 Qualified
- RoHS Compliant and Halogen Free

PRODUCT SUMMARY

VR	650 V
IF (135/156°C)	10 A / 6 A
QC	14.7 nC

BENEFITS

- Higher System Efficiency
- Increase Parallel Device Convenience
- Enable High Temperature Application
- Allow High Frequency Operation
- Realize Compact and Lightweight Systems
- High Reliability

APPLICATIONS

- Switching Mode Power Supply
- PFC
- UPS
- Motor Drives
- Flywheel diode in Power Inverters
- Solar/Wind Renewable Energy

Absolute Maximum Ratings

Parameter	Symbol	Test Conditions	Value	Unit
Peak Repetitive Reverse Voltage	VRRM	TJ = 25°C	650	V
Peak Reverse Surge Voltage	VRSM	TJ = 25°C	650	V
DC Blocking Voltage	VR	TJ = 25°C	650	V
Continuous Forward Current	IF	TC=25/135/156°C	21 / 10 / 6	A
Non-Repetitive Peak Forward Surge	IFSM	10 ms half sine / 10 us pulse	52 / 46 / 324	A
Repetitive Peak Forward Surge	IFRM	10 ms, D=0.1	42 / 37	A
Power Dissipation	PD	TC=25 / 125°C	77 / 25.5	W
I ² t value	∫i ² dt	TC=25°C, TP=10 ms	13	A ² s
Junction & Storage Temperature	Tj,Tstg	-	-55 to 175	°C
Soldering Temperature	TL	-	260	°C
Mounting Torque	MD	M3 or 6-32 screw	1.0	Nm



Electrical Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
DC Blocking Voltage	VDC	IR=100 uA, TJ=25°C	>650			V
Forward Voltage	VF	IF=6A, TJ=25°C		1.4	1.7	V
Forward Voltage	VF	IF=6A, TJ=175°C		1.6	1.9	V
Reverse Current	IR	VR=650V, TJ=25°C		1.2	45	uA
Reverse Current	IR	VR=650V, TJ=175°C		12	180	uA
Total Capacitive Charge	QC	IF=6A, dI/dt=300A/us, VR=400V		14.7		nC
Total Capacitance	Cj	VR=0.1 / 200 / 400V		365/36/29		pF
Capacitance Stored Energy	EC	VR=400V		2.8		uJ

Thermal Resistance

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance, Junction to Case	RθJC		1.95		°C/W

Naming Rule

Generation

H3 = 3rd Gen Discrete

Device Type

S = JBS diode (High Power); D = JBS diode (High Speed)

Breakdown Voltage

065 = 650V; 120 = 1200V; 170 = 1700V

Package Type

A = TO-220-2L; T = TO-263-2L; U = TO-263-2L-1NC

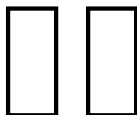
Typical Current Rating

004=4A; 006=6A; 008=8A; 010=10A; 015=15A; 020=20A

H3 S 065 A 006

Recommended Solder Pad Layout

TO-220-2L



TO-263-2L / TO-263-2L-1NC



Typical Device Performance

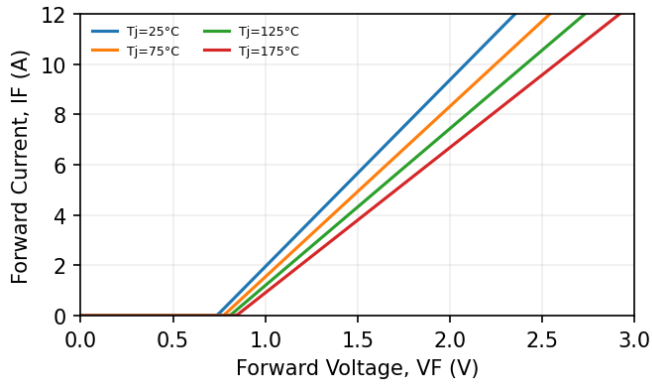


Fig.1 Forward Characteristics

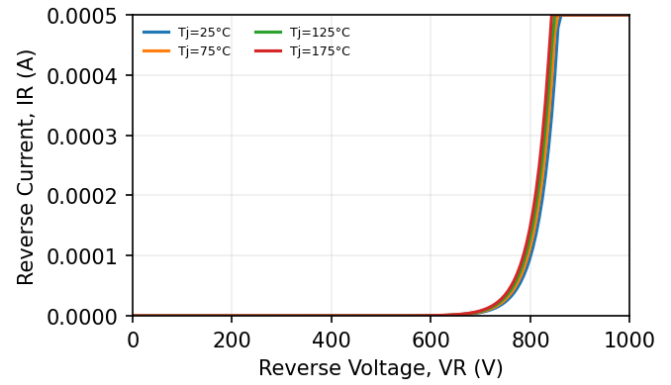


Fig.2 Reverse Characteristics

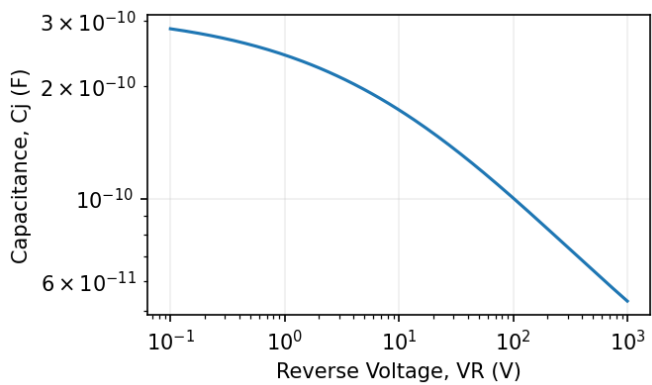


Fig.3 Junction Capacitance vs. Reverse Voltage

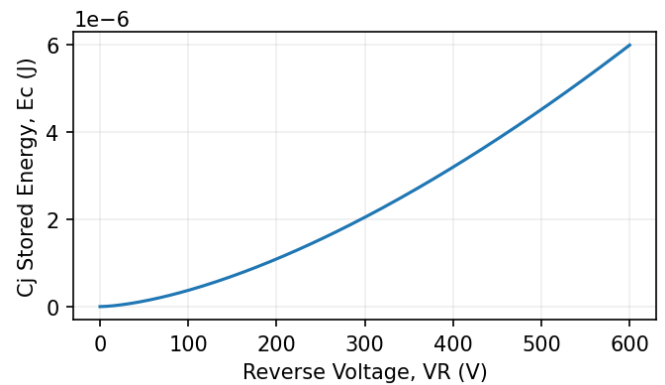


Fig.4 Capacitance Stored Energy

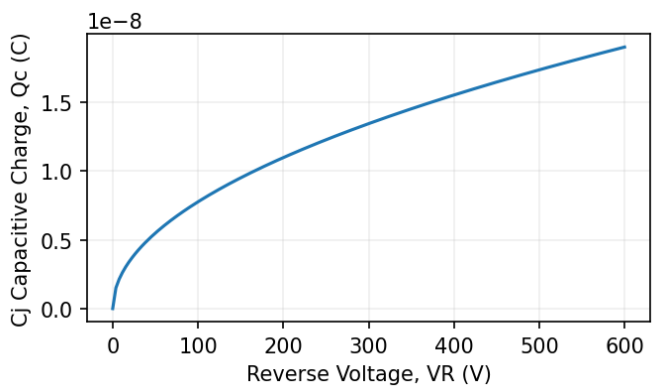


Fig.5 Recovery Charge vs. Reverse Voltage

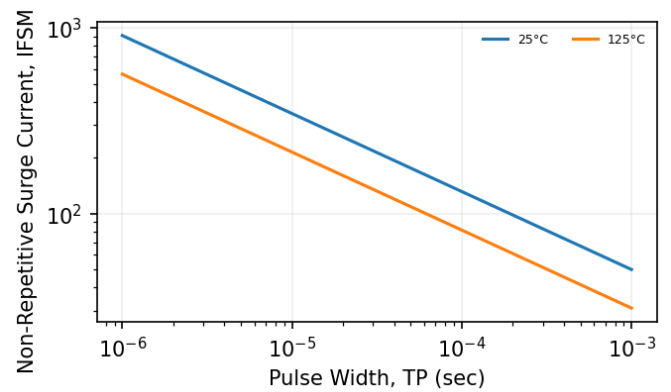


Fig.6 Non-Repetitive Peak Forward Surge Current

Typical Device Performance

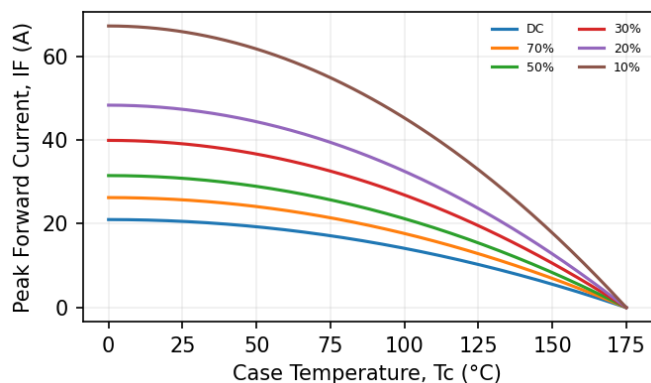


Fig.7 Maximum Forward Current Derating vs. Case Temperature

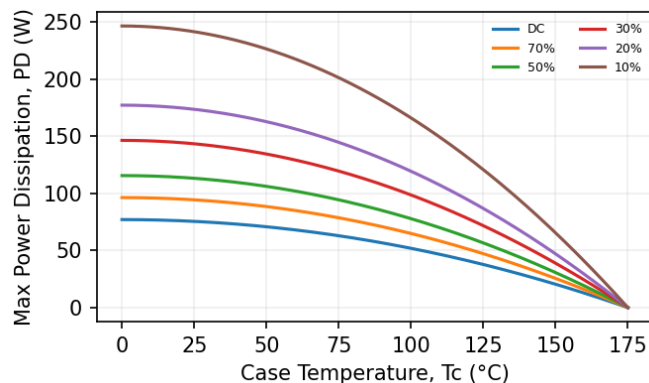


Fig.8 Maximum Power Dissipation Derating vs. Case Temperature

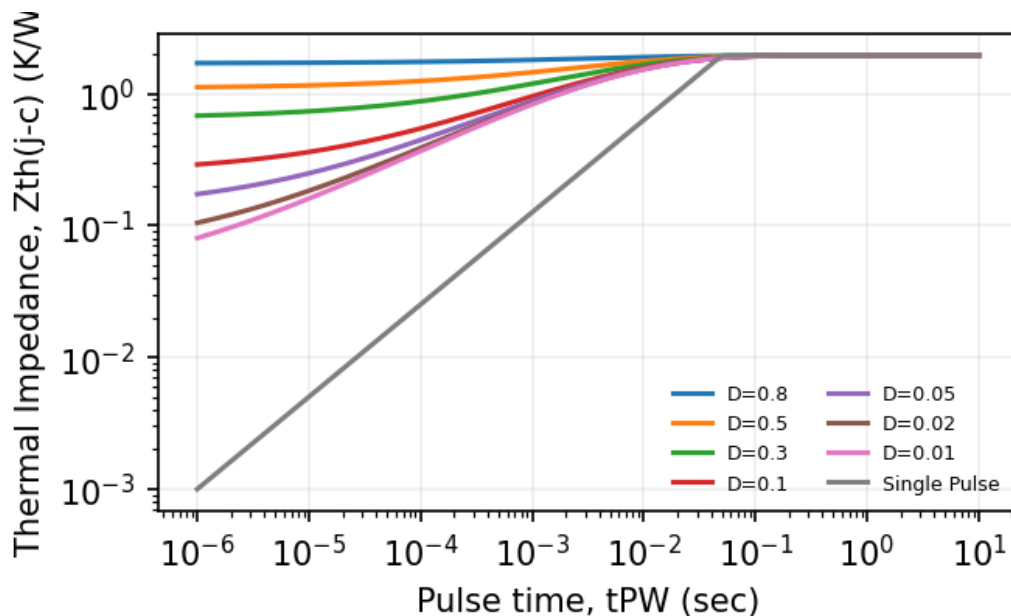
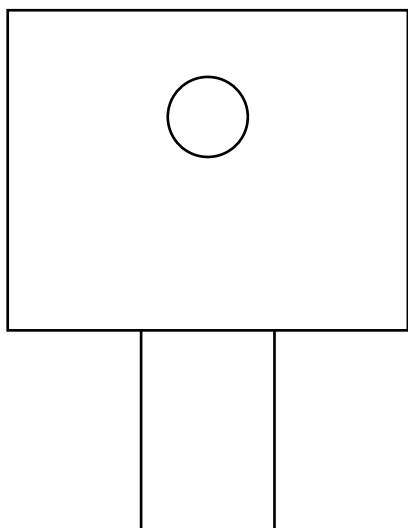


Fig.9 Transient Junction to Case Thermal Impedance

The information provided herein is subject to change without notice.

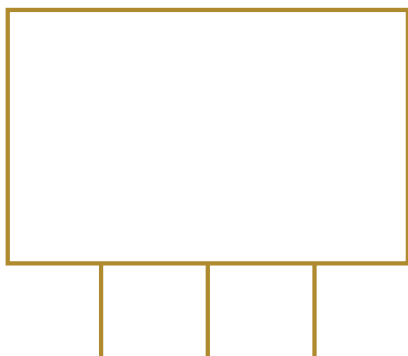
Package Dimensions (TO-220-2L)



TO-220-2L schematic

Symbol	Min.	Typ.	Max.
A	4.24	4.44	4.64
A1	1.15	1.27	1.40
A2	2.30	2.48	2.70
b	0.70	0.80	0.90
b1	1.20	1.55	1.75
b2	1.20	1.45	1.70
c	0.40	0.50	0.60
D	14.70	15.37	16.00
D1	8.82	8.92	9.02
D2	12.63	12.73	12.83
E	9.96	10.16	10.36
E1	6.86	7.77	8.89
E3*		8.70 REF	
e		2.54 BSC	
e1		5.08 BSC	
H1	6.30	6.45	6.60
L	13.47	13.72	13.97
L1	3.60	3.80	4.00
φP	3.75	3.84	3.93
Q	2.60	2.80	3.00
Q1*		1.73 REF	
R*		1.82 REF	

Package Dimensions (TO-263-2L / TO-263-2L-1NC)



TO-263-2L schematic

Symbol	Min.	Typ.	Max.
A	4.24	4.44	4.64
A1	0.00	0.10	0.25
b	0.70	0.80	0.90
b1	1.20	1.55	1.75
b2	1.20	1.45	1.70
c	0.40	0.50	0.60
c2	1.15	1.27	1.40
D	8.82	8.92	9.02
D1	6.86	7.65	---
E	9.96	10.16	10.36
E1	6.89	7.77	7.89
e		2.54 BSC	
e1		5.08 BSC	
H	14.61	15.00	15.88
L	1.78	2.32	2.79
L1		1.36 REF	
L2		0.00 REF / 1.50 REF	
L3		0.25 BSC	
Q	2.30	2.48	2.70

All dimensions are in mm. Package geometry shown schematically; dimensional values follow the supplied source datasheet.