

## Features

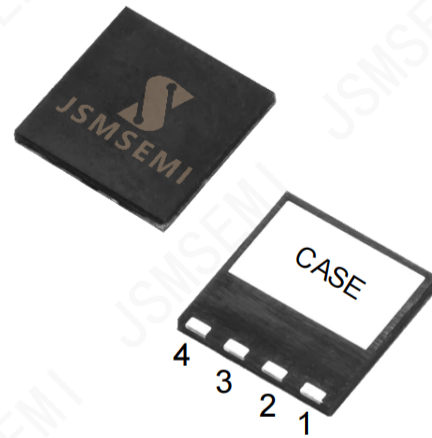
- Zero Forward/Reverse Recovery Current
- High Blocking Voltage
- High Frequency Operation
- Positive Temperature Coefficient on  $V_F$
- Temperature Independent Switching Behavior
- High surge current capability

## Benefits

- Higher System Efficiency
- Parallel Device Convenience without thermal runaway
- Higher Temperature Application
- No Switching loss
- Hard Switching & Higher Reliability
- Environmental Protection

## Applications

- PC Power
- Server Power Supply
- AC/DC converters
- DC/DC converters
- Uninterruptable power supplies



## Maximum Ratings ( $T_C=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Value	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$		650	V
Peak Reverse Surge Voltage	$V_{RSM}$		650	V
DC Blocking Voltage	$V_R$		650	V
Continuous Forward Current	$I_F$	$T_C=25^\circ\text{C}$	28	A
		$T_C=135^\circ\text{C}$	11	
		$T_C=140^\circ\text{C}$	10	
Non repetitive Forward Surge Current	$I_{FSM}$	$T_C = 25^\circ\text{C}$ , $t_p=10$ ms, Half Sine Pulse	50	A
		$T_C = 110^\circ\text{C}$ , $t_p=10$ ms, Half Sine Pulse	40	
		$T_C = 25^\circ\text{C}$ , $t_p=10$ $\mu\text{s}$ , Square	300	
Repetitive peak Forward Surge Current	$I_{FRM}$	$T_C = 25^\circ\text{C}$ , $t_p=10$ ms, Freq = 0.1Hz, 100 cycles, Half Sine Pulse	40	A
		$T_C = 110^\circ\text{C}$ , $t_p=10$ ms, Freq = 0.1Hz, 100 cycles, Half Sine Pulse	30	
Total power dissipation	$P_D$	$T_C=25^\circ\text{C}$	83	W
Operating Junction Temperature	$T_J$		-55 to 175	$^\circ\text{C}$
Storage Temperature	$T_{STG}$		-55 to 175	$^\circ\text{C}$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

### Electrical Characteristics

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
DC Blocking Voltage	$V_{DC}$	$I_R = 250\mu A, T_J = 25^\circ C$	650			V
Forward Voltage	$V_F$	$I_F = 10A, T_J = 25^\circ C$		1.5	1.8	V
		$I_F = 10A, T_J = 125^\circ C$		1.65		
		$I_F = 10A, T_J = 175^\circ C$		1.8		V
Reverse Current	$I_R$	$V_R = 650V, T_J = 25^\circ C$		10	80	$\mu A$
		$V_R = 650V, T_J = 125^\circ C$		68		$\mu A$
		$V_R = 650V, T_J = 175^\circ C$		190		$\mu A$
Total Capacitive Charge	$Q_C$	$V_R = 400V$ $T_J = 25^\circ C$		23		nC
Total Capacitance	C	$V_R = 1V, T_J = 25^\circ C,$ Freq = 1MHz		387		pF
		$V_R = 200V, T_J = 25^\circ C,$ Freq = 1MHz		48		
		$V_R = 400V, T_J = 25^\circ C,$ Freq = 1MHz		33		

Note: This is a majority carrier diode, so there is no reverse recovery charge

### Thermal Characteristics

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Thermal Resistance	$R_{th(j-c)}$	junction-case		1.8		$^\circ C/W$

### Ordering Information

Order number	Package	Marking	Operation Temperature Range	MSL Grade	Ship,Quantity	Green
STPSC10H065DLF	DFN8080-4L	SC6D10065Q	-55 to 175 $^\circ C$	1	T&R,3000	RoHS

Typical Electrical Curves

Figure 1. Forward Characteristics

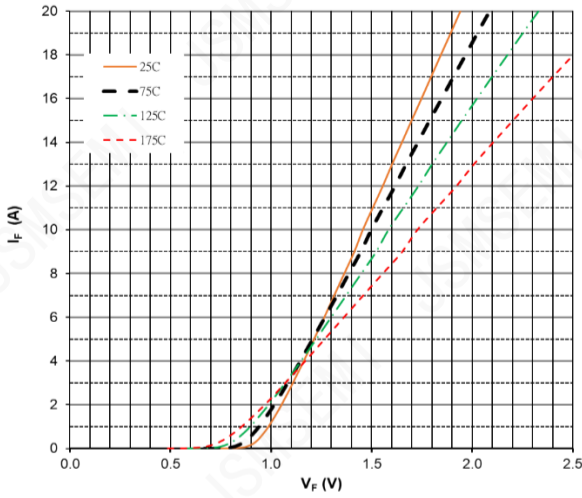


Figure 2. Forward Characteristics

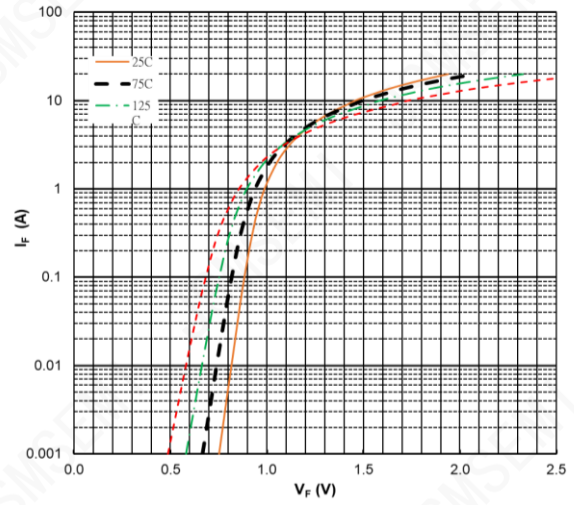


Figure 3. Reverse Characteristics

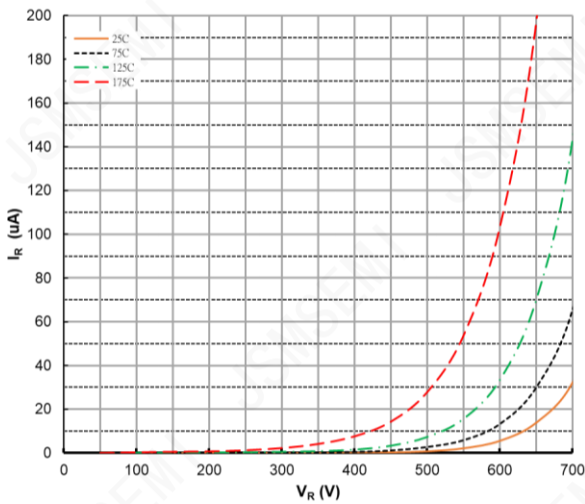


Figure 4. Power Derating

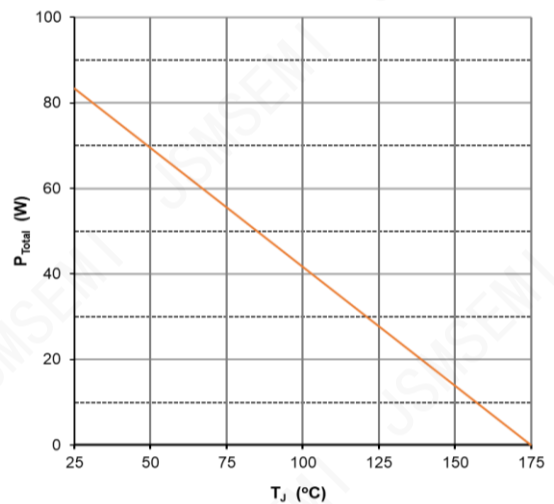


Figure 5. Capacitance vs Reverse Voltage

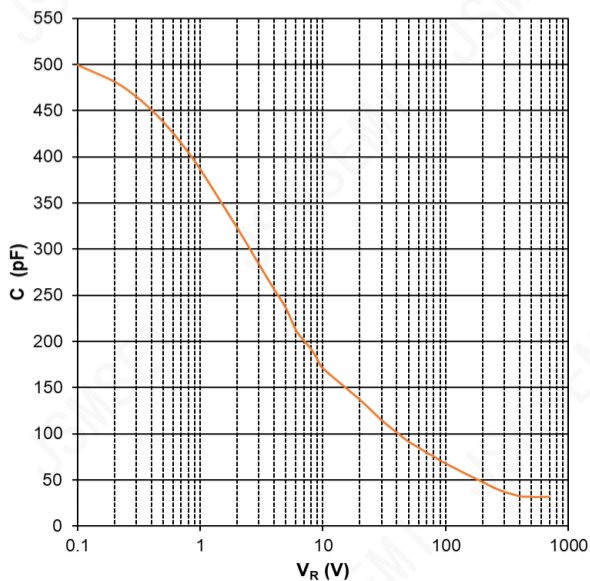
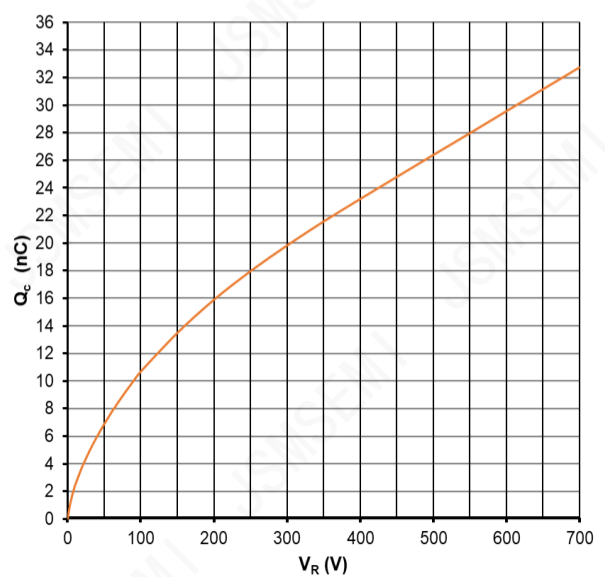
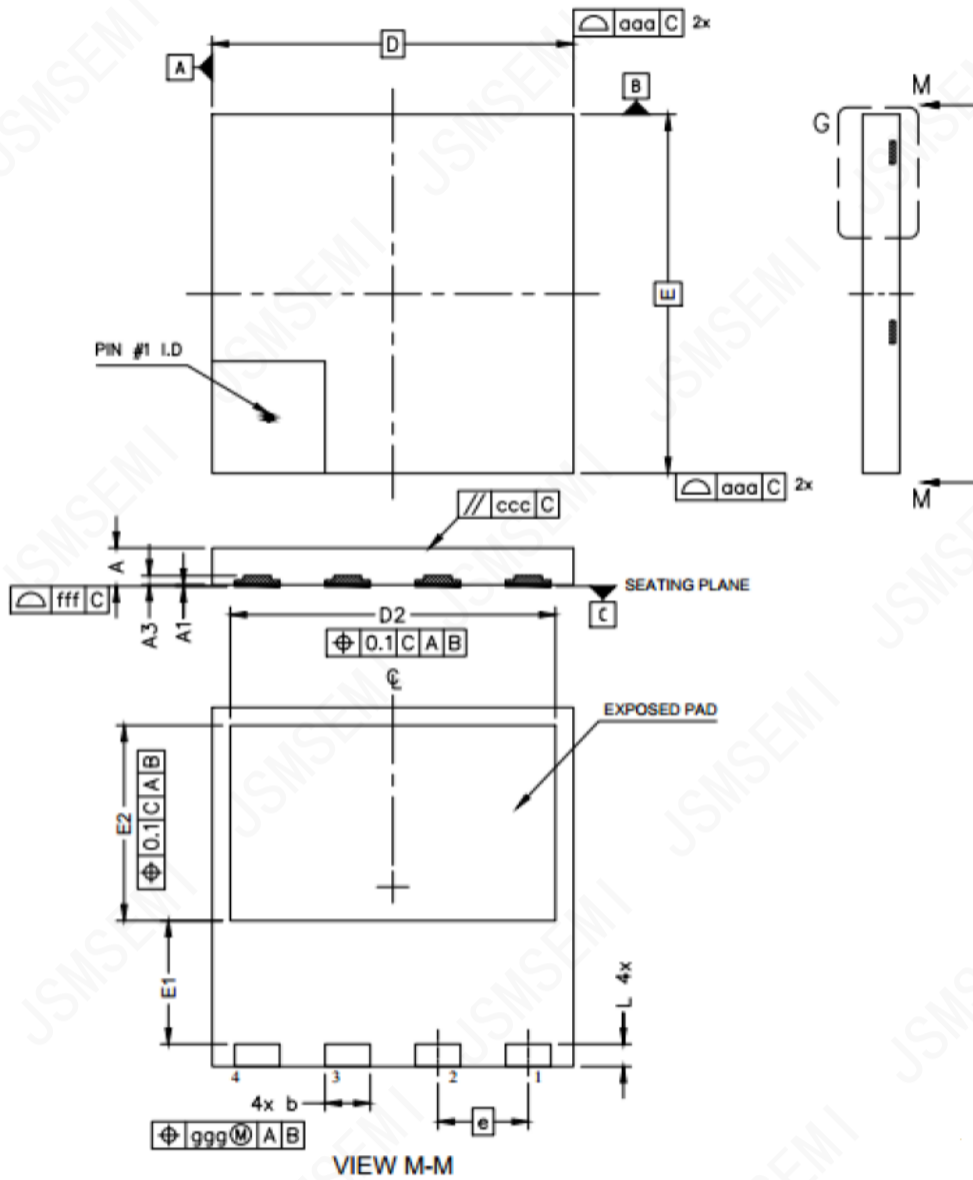


Figure 6. Recovery Charge vs Reverse Voltage



### Package Dimensions

(DFN 8x8 Package)



Items	Millimeters	
	Min	Max
A	0.75	0.95
A1	0.00	0.05
A3	0.10	0.30
b	0.9	1.10
D	7.90	8.10
E	7.90	8.10
D2	7.10	7.30
E1	2.65	2.85
E2	4.25	4.45
e	2.00 (BSC)	
L	0.40	0.60
aaa	0.10	
ggg	0.05	
ccc	0.05	
fff	0.05	

## Revision History

Rev.	Change	Date
V1.0	Initial version	2/23/2022

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