





**Table 1. Maximum Ratings**
**(T<sub>c</sub> = 25°C, unless otherwise specified)**

Parameter	Symbol	Value	Unit	Test conditions
Repetitive peak reverse voltage	V <sub>RRM</sub>	650	V	T <sub>C</sub> = 25°C
Surge peak reverse voltage	V <sub>RSM</sub>	650		T <sub>C</sub> = 25°C
DC reverse voltage	V <sub>DC</sub>	650		T <sub>C</sub> = 25°C
Continuous forward current	I <sub>F</sub>	29	A	T <sub>C</sub> = 25°C
		15		T <sub>C</sub> = 135°C
		20		T <sub>C</sub> = 101°C
Surge non-repetitive forward current	I <sub>FSM</sub>	122	A	T <sub>C</sub> = 25°C, t <sub>p</sub> = 10ms, half sine pulse
		102	A	T <sub>C</sub> = 150°C, t <sub>p</sub> = 10ms, half sine pulse
Surge repetitive forward current	I <sub>FRM</sub>	71	A	T <sub>C</sub> = 25°C, t <sub>p</sub> = 10ms, half sine wave D = 0.1
Power dissipation	P <sub>tot</sub>	61	W	T <sub>C</sub> = 25°C
i <sup>2</sup> t value	∫i <sup>2</sup> dt	74	A <sup>2</sup> s	T <sub>C</sub> = 25°C, t <sub>p</sub> = 10ms
Operating junction temperature	T <sub>j</sub>	-55~175	°C	
Storage temperature	T <sub>stg</sub>	-55~175	°C	
Mounting torque	M	1	Nm	M3 screw

**Table 2. Thermal Resistance**

Parameter	Symbol	Values			Unit	Test condition
		Min.	Typ.	Max.		
Thermal resistance from junction to case	R <sub>th(j-c)</sub>	/	2.46	/	°C/W	

**Table 3. Static Electrical Characteristics**

(T<sub>j</sub> = 25°C, unless otherwise specified)

Parameter	Symbol	Values			Unit	Test conditions
		Min.	Typ.	Max.		
DC blocking voltage	V <sub>DC</sub>	650	/	/	V	I <sub>R</sub> = 100 μA
Forward voltage	V <sub>F</sub>	/	1.30	1.45	V	I <sub>F</sub> = 20A, T <sub>j</sub> = 25°C
		/	1.50	1.75		I <sub>F</sub> = 20A, T <sub>j</sub> = 175°C
Reverse current	I <sub>R</sub>	/	5	120	μA	V <sub>R</sub> = 650V, T <sub>j</sub> = 25°C
		/	50	600		V <sub>R</sub> = 650V, T <sub>j</sub> = 175°C

**Table 4. Dynamic Electrical Characteristics**

(T<sub>j</sub> = 25°C, unless otherwise specified)

Parameter	Symbol	Values			Unit	Test conditions
		Min.	Typ.	Max.		
Total capacitance	C	/	1205	/	pF	V <sub>R</sub> = 0V, f = 1MHz
		/	114	/		V <sub>R</sub> = 200V, f = 1MHz
		/	87	/		V <sub>R</sub> = 400V, f = 1MHz
Total capacitive charge	Q <sub>C</sub>	/	59	/	nC	V <sub>R</sub> = 400V
Capacitance stored energy	E <sub>C</sub>	/	8.7	/	μJ	V <sub>R</sub> = 400V

## Electrical Characteristic Diagrams

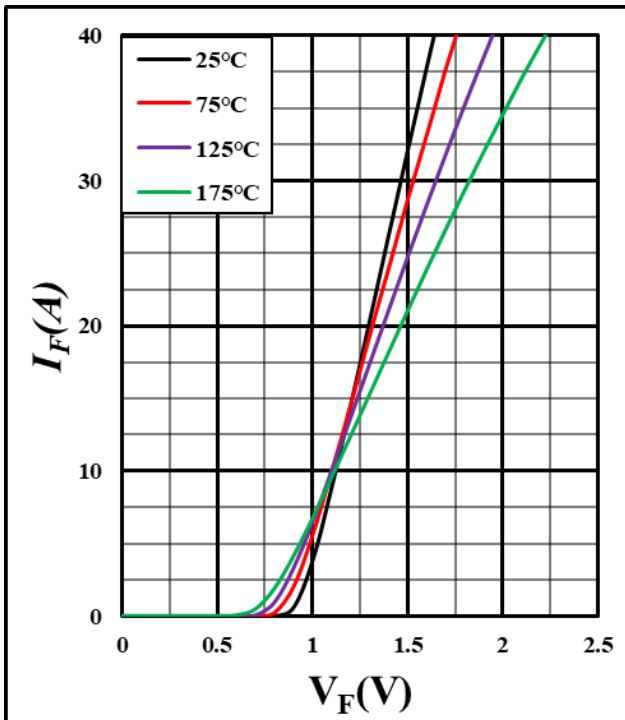


Figure 1. Forward characteristics

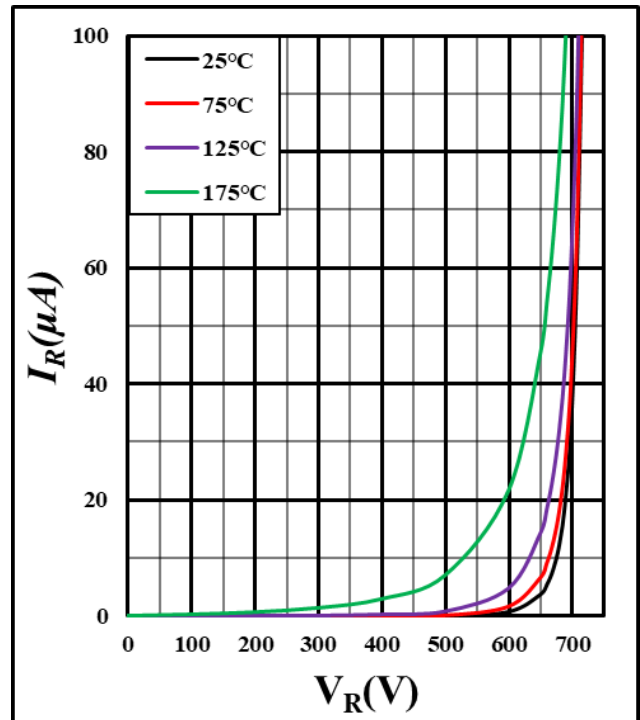


Figure 2. Reverse characteristics

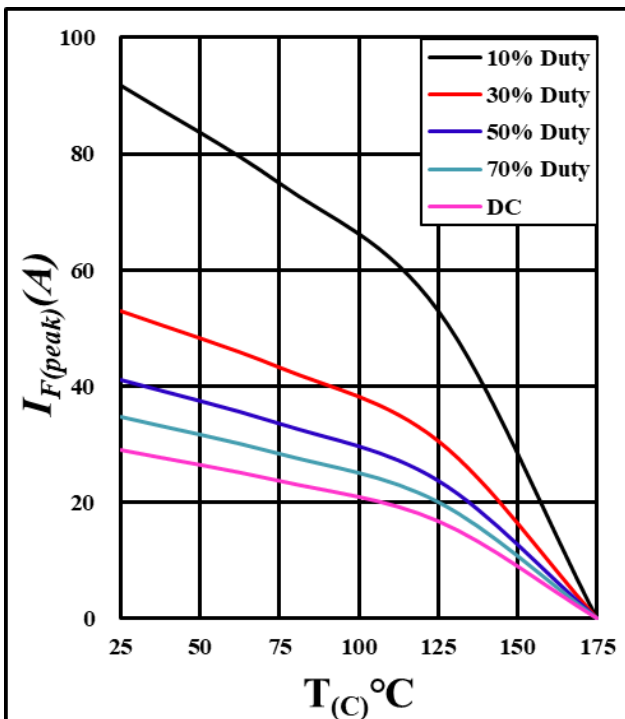


Figure 3. Current derating

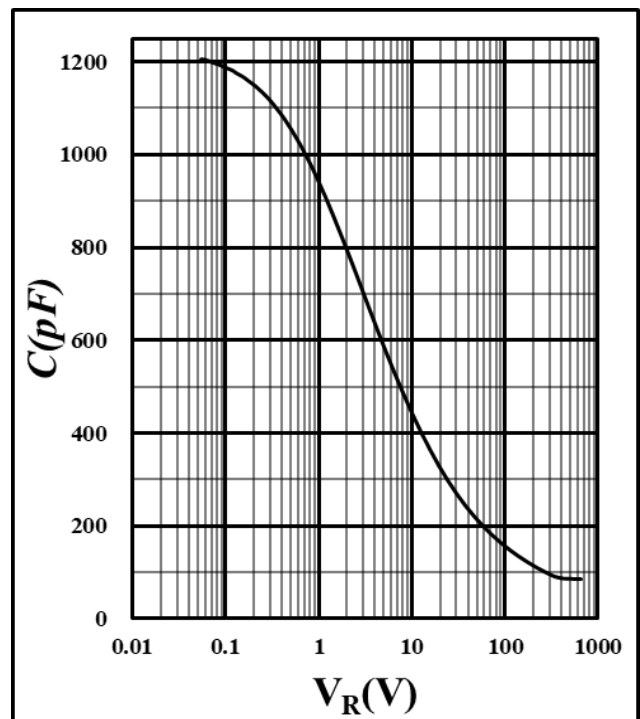


Figure 4. Capacitance vs. reverse voltage

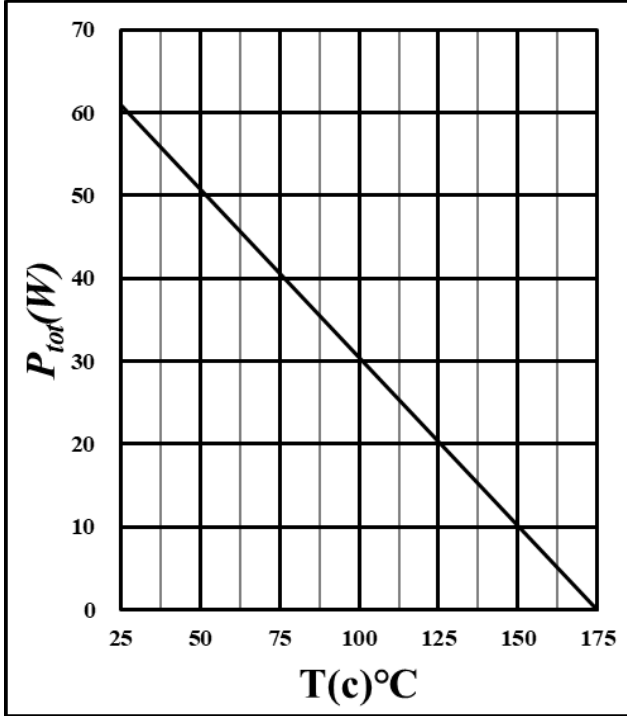


Figure 5. Power derating

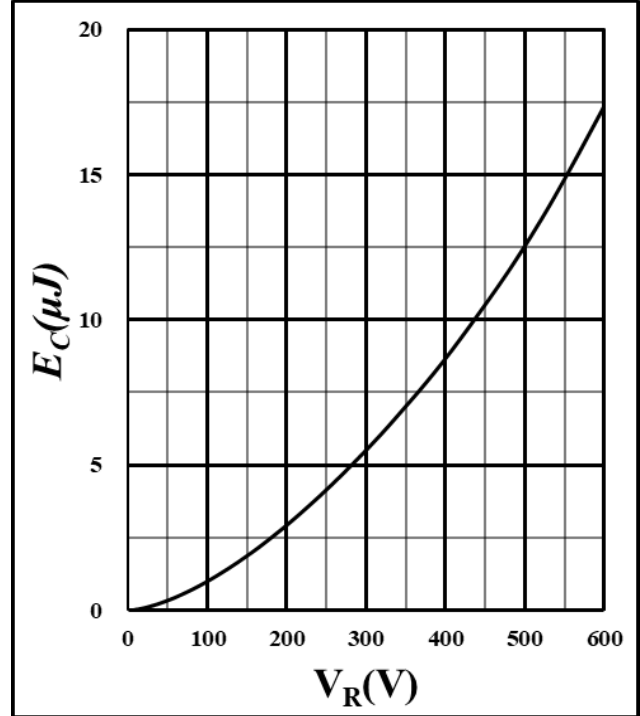


Figure 6. Capacitance stored energy

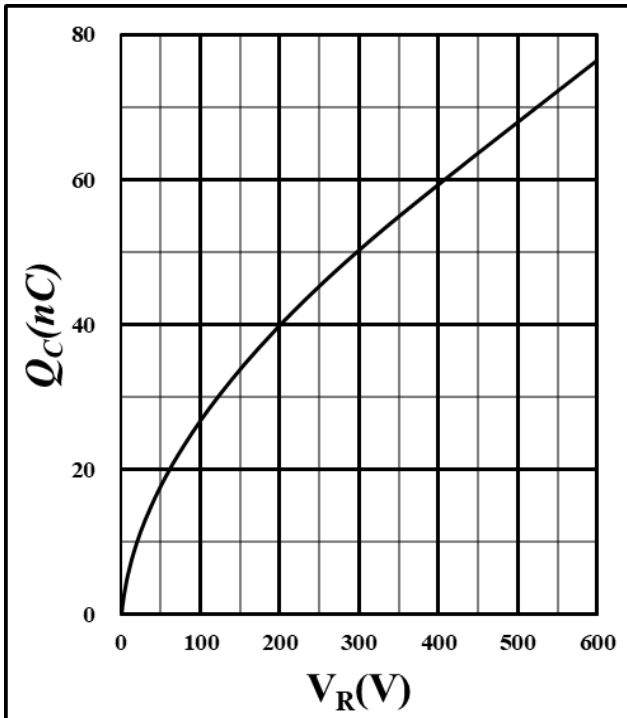
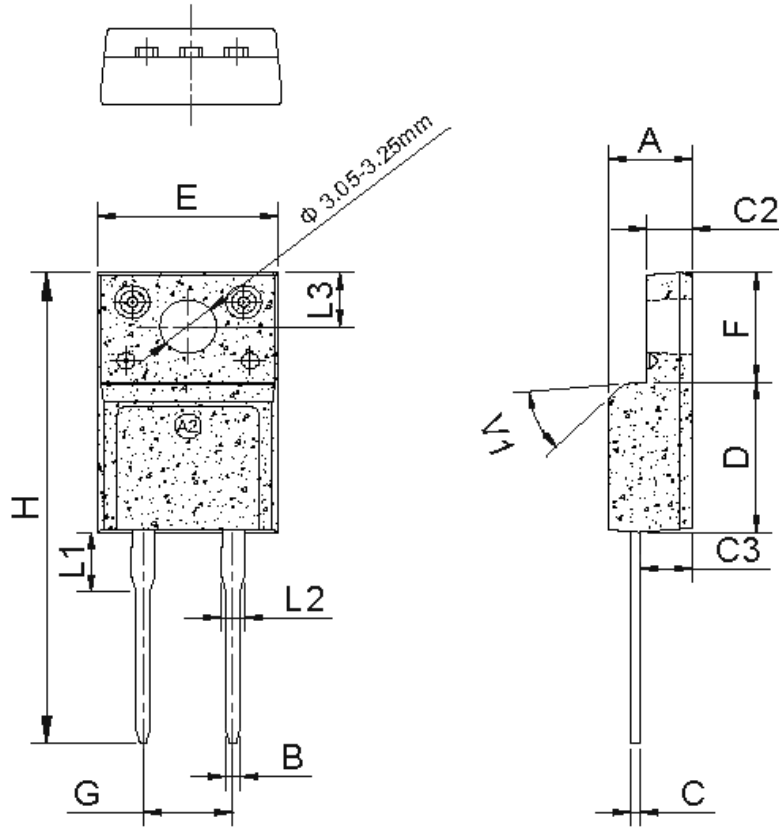


Figure 7. Total capacitance charge vs. reverse voltage

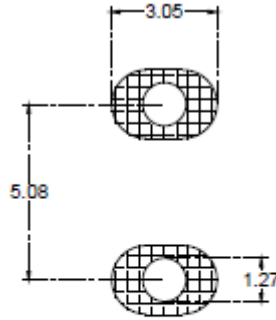
Package Information



Dimension unit: [mm]			
Symbol	Min	Nom	Max
A	4.50		4.90
B	0.74	0.80	0.83
C	0.47		0.65
C2	2.45		2.75
C3	2.60		3.00
D	8.80		9.30
E	9.80		10.4
F	6.40		6.80
G	4.80		5.40
H	28.0		29.8
L1		3.63	
L2	1.14		1.70
L3		3.30	
V1		45°	

## Recommended Solder Pad Layout

Note: All dimensions are in mm



TO-220F-2L

## Ordering Information

Part number	SDS065J020F4-ISATH
Package	TO-220F-2L
Unit quantity	1000 EA
Packing type	Tube



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