DESCRIPTION

The S30SC650D is available in TO-252 package.

APPLICATION

- UPS
- Power Inverter
- High performance SMPS
- Power factor correction

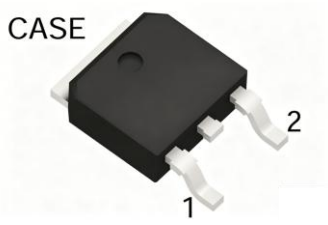
ORDERING INFORMATION

Package Type	Part Number
TO-252	S30SC650D
SPQ	2,500pcs/Reel
AiT provides all RoHS Compliant Products	

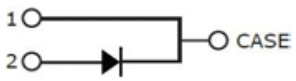
FEATURE

- Low conduction loss due to low V_F
- Extremely low switching loss by tiny Q_C
- Highly rugged due to better surge current
- Industrial standard quality and reliability

PIN DESCRIPTION



TO-252



PIN#	DESCRIPTION
1	Cathode
2	Anode
3	CASE (Cathode)

ABSOLUTE MAXIMUM RATINGS

T_C= 25°C, unless otherwise specified.

V_{RRM}, Peak Repetitive Reverse Voltage		650V
V_{RSM}, Surge Peak Reverse Voltage		650V
V_R, Peak Reverse Voltage		650V
I_F, Continuous Forward Current	T_C= 25°C	30A
	T_C= 135°C	15A
	T_C= 160°C	8A
I_{FRM}, Repetitive Peak Forward Surge Current	T_C = 25°C, tp=10ms, Half Sine Pulse	38A
	T_C = 110°C, tp=10ms, Half Sine Pulse	25A
I_{FSM}, Non-Repetitive Forward Surge Current	T_C = 25°C, tp=10ms, Half Sine Pulse	64A
	T_C = 110°C, tp=10ms, Half Sine Pulse	53A
P_{tot}, Power dissipation	T_C= 25°C	88W
	T_C= 110°C	38W
T_J, Operating Temperature		-55℃ ~ + 175℃
T_{STG}, Storage Temperature		-55℃ ~ + 150℃
$\int i2dt$, i^2dt value	T_C = 25°C, t_p=10ms, Half Sine Pulse	20.5 A^2S
	T_C = 110°C, t_p=10ms, Half Sine Pulse	14 A^2S
R_{thJC}, Thermal Resistance, Junction-to-Case		1.7°C /W

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ELECTRICAL CHARACTERISTICS

T_C=25℃ unless otherwise specified.

Parameter	Symbol	Condition	Min	Typ.	Max	Unit
Forward Voltage	V_F	I_F =8A, T_J = 25°C	-	1.30	1.50	V
		I_F =8A, T_J = 175°C	-	1.55	-	
Reverse Current	I_R	V_R=650V, T_J = 25°C	-	-	50	uA
		V_R=650V, T_J = 175°C	-	-	200	
Total Capacitive Charge	Q_C	V_R=400V, T_J = 25°C $Q_C = \int_0^{V_R} C(V)dV$	-	23	-	nC
Total Capacitance	C	T_J = 25°C, V_R=0V, f=1Mhz	-	466	-	pF
		T_J = 25°C, V_R=200V, f=1Mhz	-	47	-	
		T_J = 25°C, V_R=400V, f=1Mhz	-	38	-	

TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. Forward Characteristics

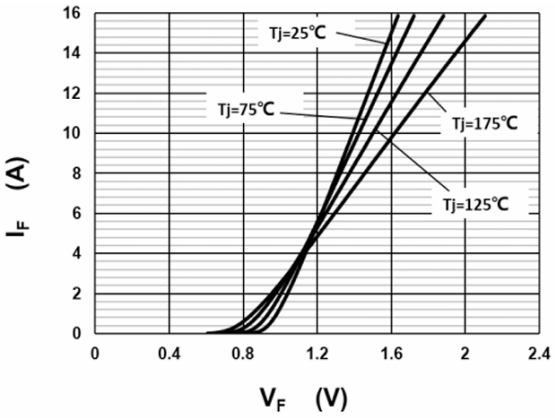


Fig 2. Reverse Characteristics

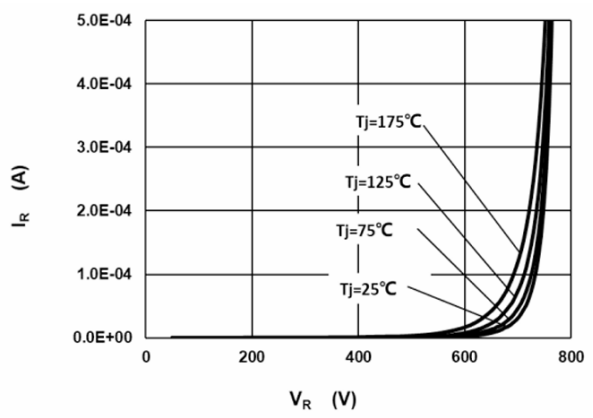


Fig 3. Current Derating

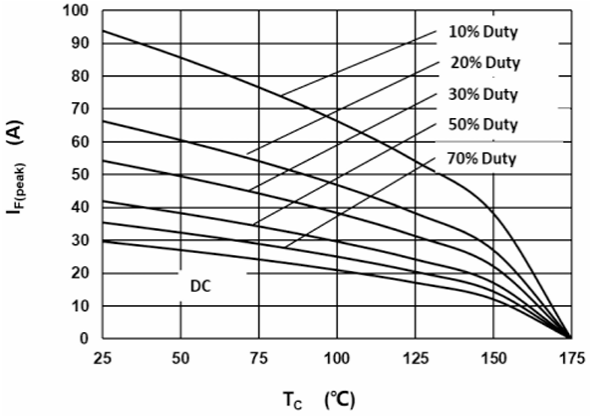


Fig 4. Power Derating

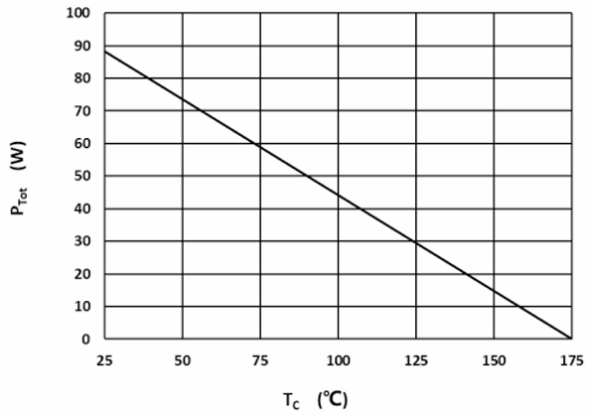


Fig 5. Capacitive vs. Reverse Voltage

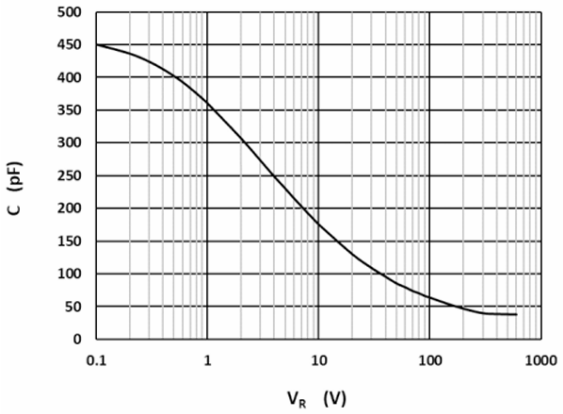


Fig 6. Reverse Charge vs. Reverse Voltage

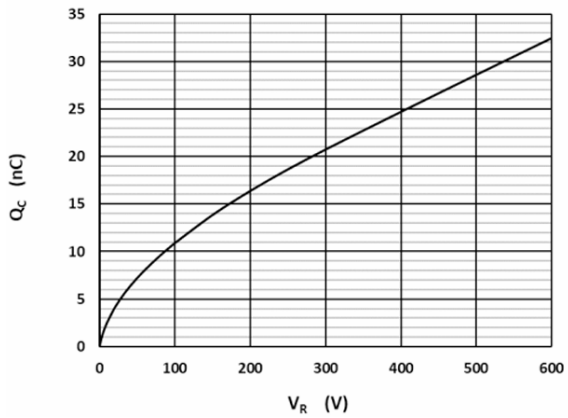


Fig 7. Typical Capacitance Stored Energy

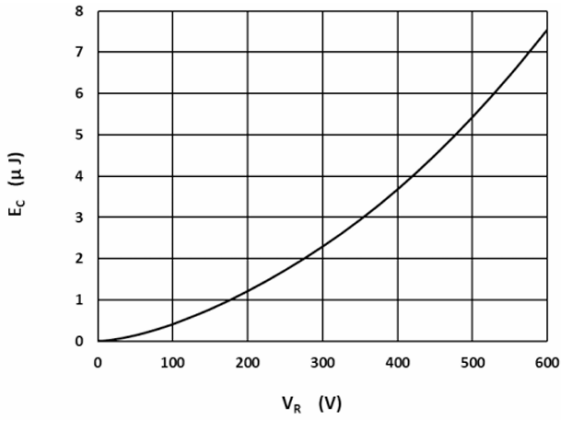
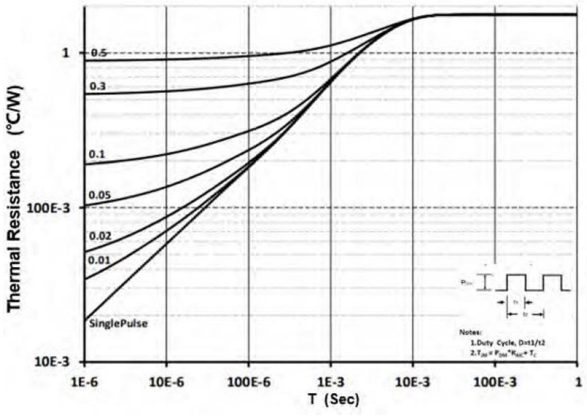
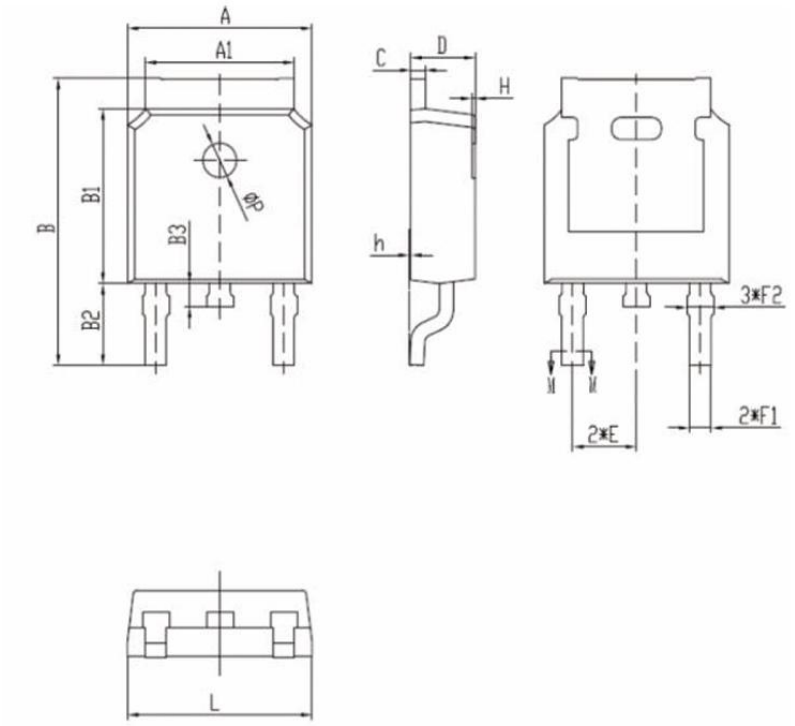


Fig 8. Transient Thermal impedance



PACKAGE INFORMATION

Dimension in TO-252 (Unit: mm)



SYMBOL	MILLIMETERS	
	Min.	Max.
A	6.500	6.700
A1	5.160	5.460
B	9.770	10.170
B1	6.000	6.200
B2	2.600	3.000
B3	0.700	0.900
C	0.450	0.610
D	2.200	2.400
E	2.186	2.386
F1	0.670	0.870
F2	0.760	0.960
H	0.000	0.300
h	0.000	0.127
L	6.500	6.700
ΦP	1.100	1.300

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