



650V SIC Junction Barrier Schottky Diode

Features

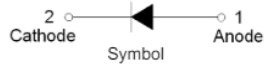
- High surge current capability
- No reverse recovery
- Positive Temperature Coefficient
- Temperature-Independent switching behavior
- Halogen-free / RoHS compliant

Application

- Solar inverter
- Power factor correction
- Industrial power supplies
- Switch mode power supply

Key Performance Parameters

Parameter	Value	Unit
V_{RRM}	650	V
I_F	50	A
Q_C	132.5	nC



Schematic Diagram



TO-247-2L top view



Device/Ordering Code	Marking	Package	Reel Size	Tape width	Quantity
SJT265D50JC	SJT265D50JC	TO-247-2L	\	\	\

Table 1. Absolute Maximum Ratings ($T_c=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test conditions	Value	Unit
V_{RRM}	Repetitive peak reverse voltage		650	V
$I_{F(AV)}$	Average forward current	$T_c=154^\circ\text{C}$	50	A
I_{FSM}	Non-repetitive forward surge current	$t_p=10\text{ms}$, Half sine pulse	400	A
P_{tot}	Power dissipation	$T_c=25^\circ\text{C}$	250	W
		$T_c=110^\circ\text{C}$	108	W
T_J, T_{STG}	Operating Junction and Storage Temperature Range		-55 To 175	$^\circ\text{C}$

Table 2. Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case		0.6	$^\circ\text{C/W}$



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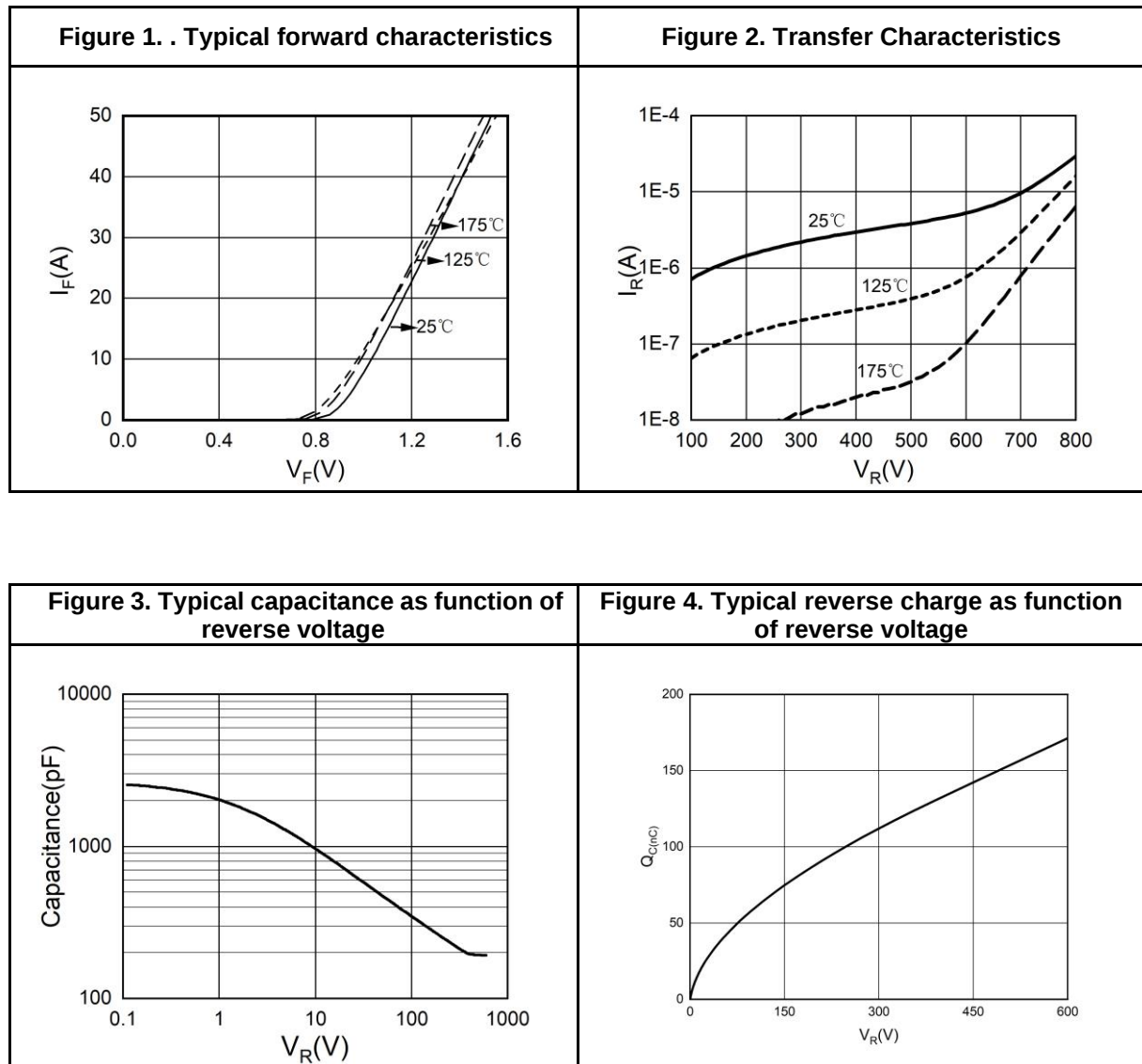
Table 3. Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
V_{DC}	DC blocking voltage	$T_J=25^{\circ}\text{C}$	650			V
V_F	Diode forward voltage	$I_F=50\text{A } T_J=25^{\circ}\text{C}$		1.42		V
V_F	Diode forward voltage	$I_F=50\text{A } T_J=125^{\circ}\text{C}$		1.51		V
V_F	Diode forward voltage	$I_F=50\text{A } T_J=175^{\circ}\text{C}$		1.56		V
I_R	Reverse current	$V_R=650\text{V } T_J=25^{\circ}\text{C}$		0.27		μA
I_R	Reverse current	$V_R=650\text{V } T_J=175^{\circ}\text{C}$		6.7		μA
AC Characteristics						
Q_C	Total capacitive charge	$V_R=400\text{V } T_J=25^{\circ}\text{C}$		132.5		nC
E_C	Capacitance stored energy	$V_R=400\text{V}$		15.6		μJ
C	Total capacitance	$V_R=1\text{V } f=1\text{MHz}$		2005		pF
		$V_R=300\text{V } f=1\text{MHz}$		218		pF
		$V_R=600\text{V } f=1\text{MHz}$		192		pF



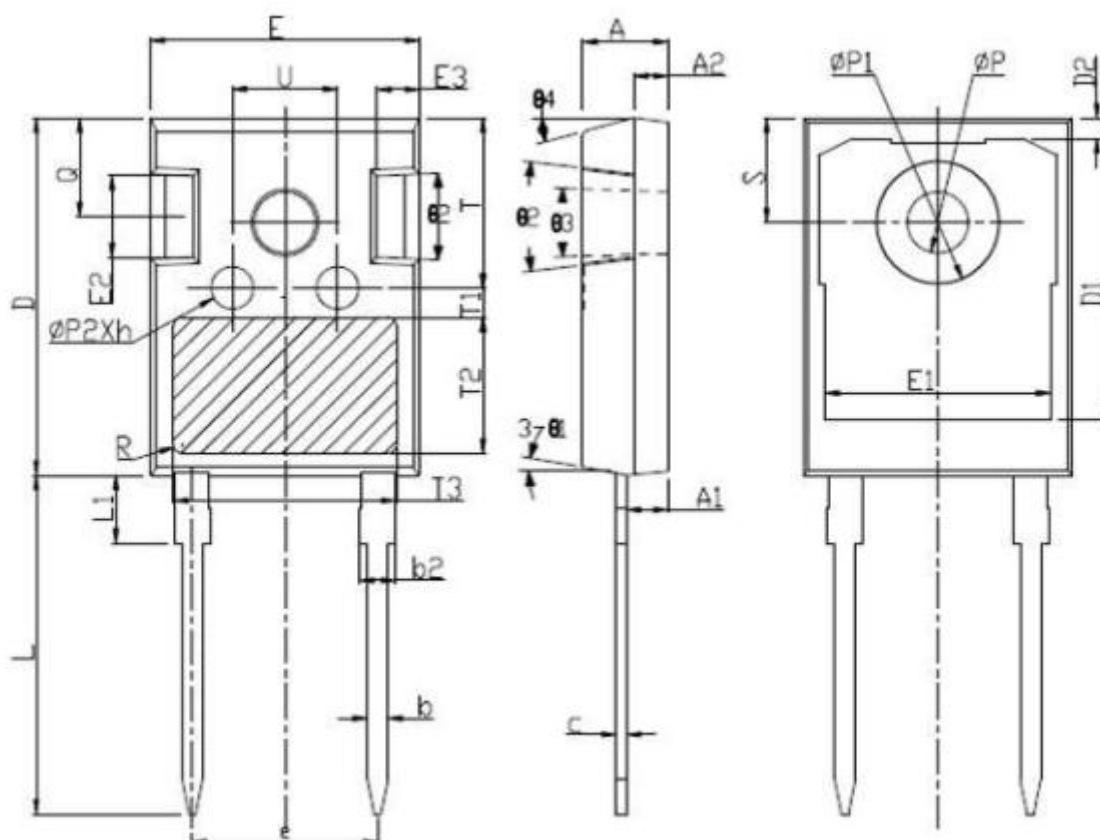
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Typical Electrical And Thermal Characteristics (Curves)





TO-247-2L Package Information



Symbol	Min	Nom	Max	Symbol	Min	Nom	Max
A	4.9	5.0	5.1	e	10.88BSC		
A1	2.3	2.4	2.5	h	0.05	0.10	0.15
A2	1.9	2.0	2.1	L	19.6	19.9	20.2
b	1.10	1.20	1.25	L1			4.3
b2	1.90	2.00	2.25	Φp	3.5	3.6	3.75
c	0.50	0.60	0.70	Φp1			7.3
D	20.8	21.0	21.2	Φp2	2.4	2.5	2.6
D1	16.25	16.55	16.85	Q	5.3		5.9
D2	1.05	1.20	1.35	S	6.15BSC		
E	15.6	15.8	16.0	T	9.8		10.2
E1	13.1	13.3	13.5	T1	1.65REF		
E2	4.9	5.0	5.1	T2	8.0REF		
E3	2.4	2.5	2.6	T3	12.8REF		
				U	6.0		6.4



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