

Features

- 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
- RoHS compliant with Halogen-free
- Qualified to AEC-Q101 Standards

HF

Applications

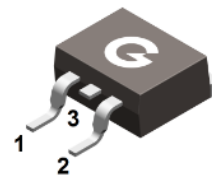
- UPS
- Power Inverter
- High performance SMPS
- Power factor correction

Mechanical Data

- Case: TO-263
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208

Key performance parameters

Type	TGSC2D20120B
V_{DC}	1200V
$I_F @ 153^{\circ}\text{C}$	20A
$Q_C @ 800\text{V}$	105nC
T_J	175 $^{\circ}\text{C}$



TO-263

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
TGSC2D20120B	TO-263	50 pcs / Tube or 800 pcs / Tape & Reel	GSC2D20120B

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

Parameter	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	1200	V
Surge Peak Reverse Voltage	V_{RSM}	1200	V
DC Peak Reverse Voltage	V_R	1200	V
Continuous Forward Current ($T_C = 25^{\circ}\text{C}$)	I_F	54	A
Continuous Forward Current ($T_C = 135^{\circ}\text{C}$)	I_F	27	A
Continuous Forward Current ($T_C = 145^{\circ}\text{C}$)	I_F	20	A
Non-Repetitive Forward Surge Current (10ms single half sine-wave, $T_C = 25^{\circ}\text{C}$)	I_{FSM}	120	A
Non-Repetitive Forward Surge Current (10ms single half sine-wave, $T_C = 110^{\circ}\text{C}$)		100	A
Repetitive Peak Forward Surge Current (10ms half sine-wave, $T_C = 25^{\circ}\text{C}$)	I_{FRM}	86	A
Repetitive Peak Forward Surge Current (10ms half sine-wave, $T_C = 110^{\circ}\text{C}$)		58	A
i^2dt value (10ms single half sine-wave, $T_C = 25^{\circ}\text{C}$)	$\int i^2 dt$	72	A^2s
i^2dt value (10ms single half sine-wave, $T_C = 110^{\circ}\text{C}$)		50	A^2s

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation ($T_C = 25^\circ\text{C}$)	P_D	136	W
Power Dissipation ($T_C = 110^\circ\text{C}$)		59	
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	1.1	$^\circ\text{C/W}$
Operating junction Temperature	T_J	-55 ~ +175	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^\circ\text{C}$

Electrical Characteristics (@ $T_J = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Reverse Breakdown Voltage	$V_{(BR)}$	$I_R = 100\mu\text{A}$	1200	-	-	V
Forward Voltage	V_F	$I_F = 20\text{A}, T_J = 25^\circ\text{C}$	-	1.4	1.7	V
		$I_F = 20\text{A}, T_J = 175^\circ\text{C}$	-	2.0	-	V
Maximum Peak Reverse Current	I_R	$V_R = 1200\text{V}, T_J = 25^\circ\text{C}$	-	-	2	μA
		$V_R = 1200\text{V}, T_J = 175^\circ\text{C}$	-	-	20	μA
Total Capacitive Charge	Q_C	$V_R = 800\text{V}, di/dt = 100\text{A}/\mu\text{s}$	-	105	-	nC
Total Capacitance	C_J	$V_R = 0\text{V}, f = 1\text{MHz}$	-	1496	-	pF
		$V_R = 400\text{V}, f = 1\text{MHz}$	-	71	-	
		$V_R = 800\text{V}, f = 1\text{MHz}$	-	55	-	

Ratings and Characteristics Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

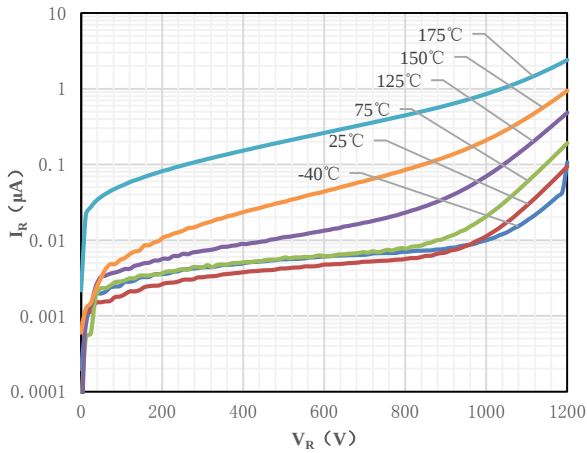


Fig 1 Typical Reverse Characteristic

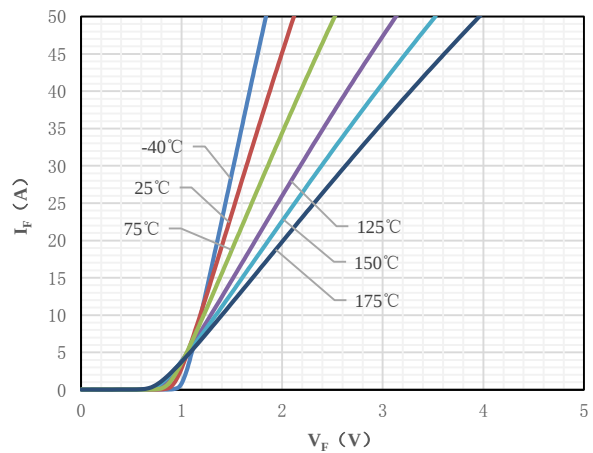


Fig 2 Typical Forward Characteristics

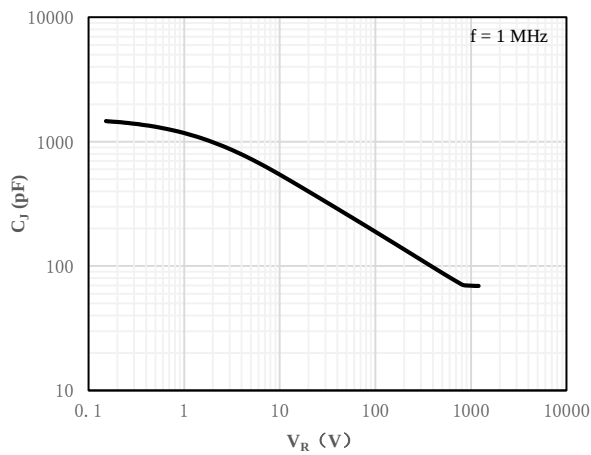


Fig 3 Capacitance vs. Reverse Voltage

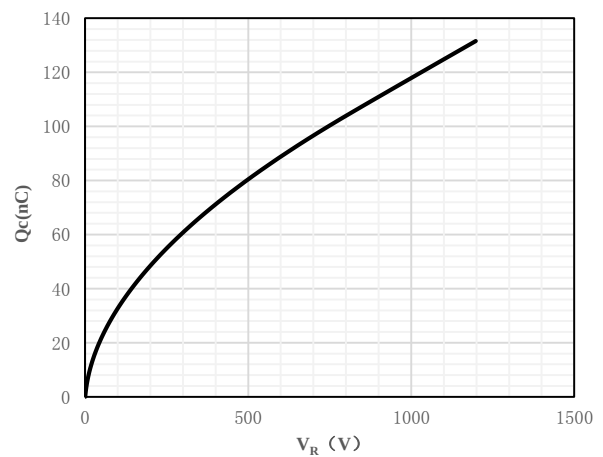


Fig 4 Reverse Charge vs. Reverse Voltage

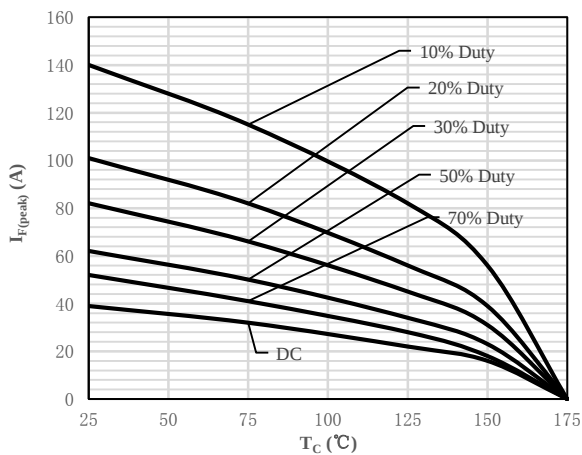


Fig 5 Current Derating

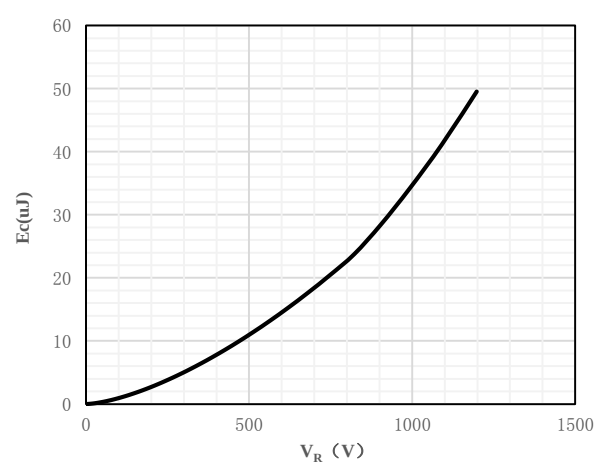
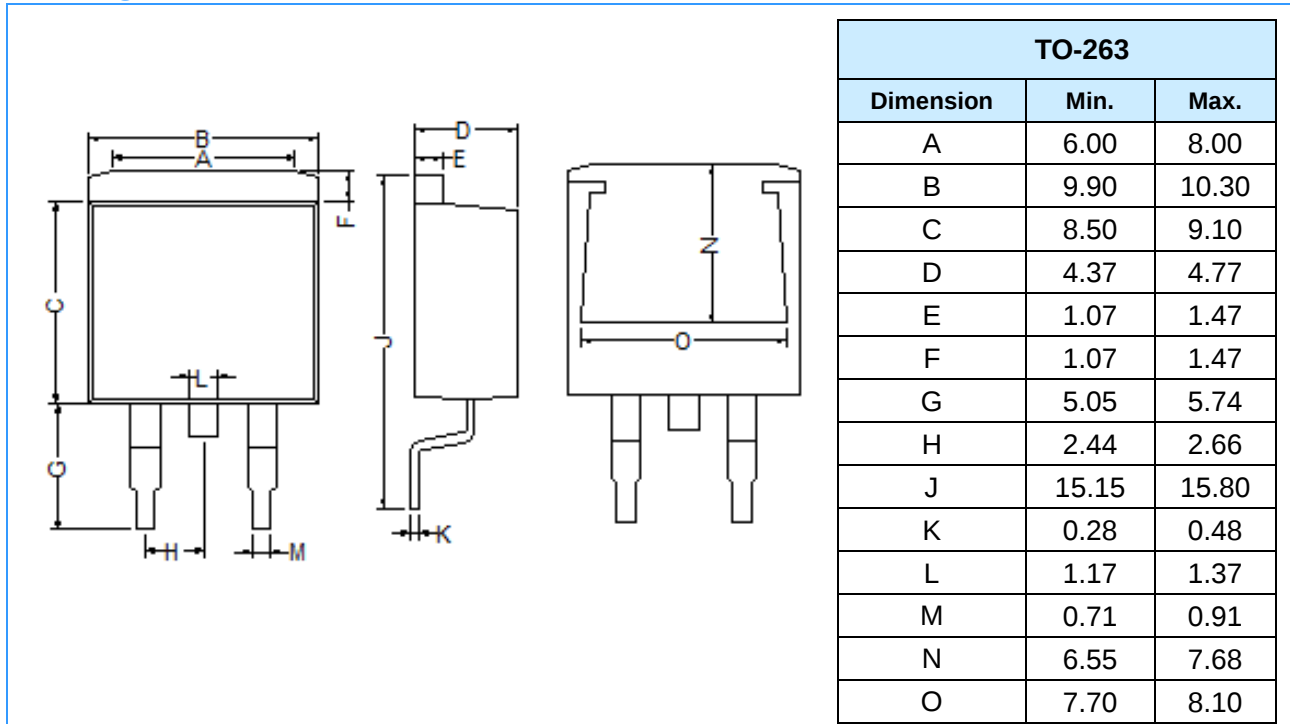


Fig 6 Typical Capacitance Stored Energy

Package Outline Dimensions (Unit: mm)



Mounting Pad Layout (Unit: mm)

