

# BRSC65R380ZDP

Rev.A Jan.-2026

DATA SHEET

## / Absolute Maximum Ratings(Tc=25 )

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DSS}$	650	V
Drain Current	$I_D(T_C=25)$	11	A
	$I_D(T_C=175)$	9	A
Drain Current - Pulsed	$I_{DM}$	22	A
Gate-Source Voltage	$V_{GS}$	-10/+22	V
Recommended Operation Voltage of Gate to Source	$V_{GSop}$	0/+18	V
Power Dissipation	$P_D(T_C=25)$	52	W
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to 175	
Junction-to-Case	$R_{JC}$	2.88	/W

## / Electrical Characteristics(Tc=25 )

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V$ $I_D=500$ A	650			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=650V$ $V_{GS}=0V$			10	A
Gate-Body Leakage Current Forward	$I_{GSS}$	$V_{GS}=18V$ $V_{DS}=0V$			250	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=1.8mA$	2.7		4.5	V
Total gate charge	$R_{DS(on)}$	$V_{GS}=15V$ $I_D=4A$		350		m
		$V_{GS}=15V$ $I_D=5A$		380	500	
		$V_{GS}=15V$ $I_D=5A$ $T_J=175$		325		
		$V_{GS}=18V$ $I_D=5A$		260		
		$V_{GS}=18V$ $I_D=5A$ $T_J=175$		270		
Drain-Source Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V$ $I_S=3A$		3.5		V
Continuous Diode Forward Current	$I_S$	$V_{GS}=0V$		11		A
Reverse Recovery Time	$t_{rr}$	$V_{GS}=0V$ , $I_{SD}=5A$ , $V_R=500V$ , $di/dt=530A/us$ , $T_J=25$		17.8		ns
Reverse Recovery Charge	$Q_{rr}$			33.7		nC
Peak Reverse Recovery Current	$I_{rrm}$			3.5		A

## / Electrical Characteristics(Tc=25 )

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=0/15V$ $V_{DD}=500V$ $I_D=5A$ $R_g=10$		24		ns
Turn-On Rise Time	$t_r$			42		
Turn-Off Delay Time	$t_{d(off)}$			26.8		
Turn-Off Fall Time	$t_f$			76		
Gate resistance	$R_g$	$V_{AC}=25mV$ $f=1MHz$		14.3		
Input Capacitance	$C_{iss}$	$V_{DS}=500V$ $V_{GS}=0V$ $f=1MHz$		254		pF
Output Capacitance	$C_{oss}$			20.2		
Reverse Transfer Capacitance	$C_{rss}$			2.4		
Total Gate Charge	$Q_g$	$V_{GS}=0/15V,$ $V_{DS}=500V,$ $I_D=5A$		21.3		nC
Gate Source Charge	$Q_{gs}$			6.7		
Gate Drain Charge	$Q_{gd}$			11.5		

/ Electrical Characteristic Curve

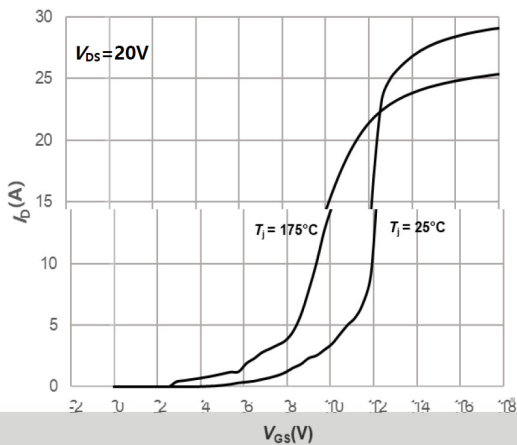
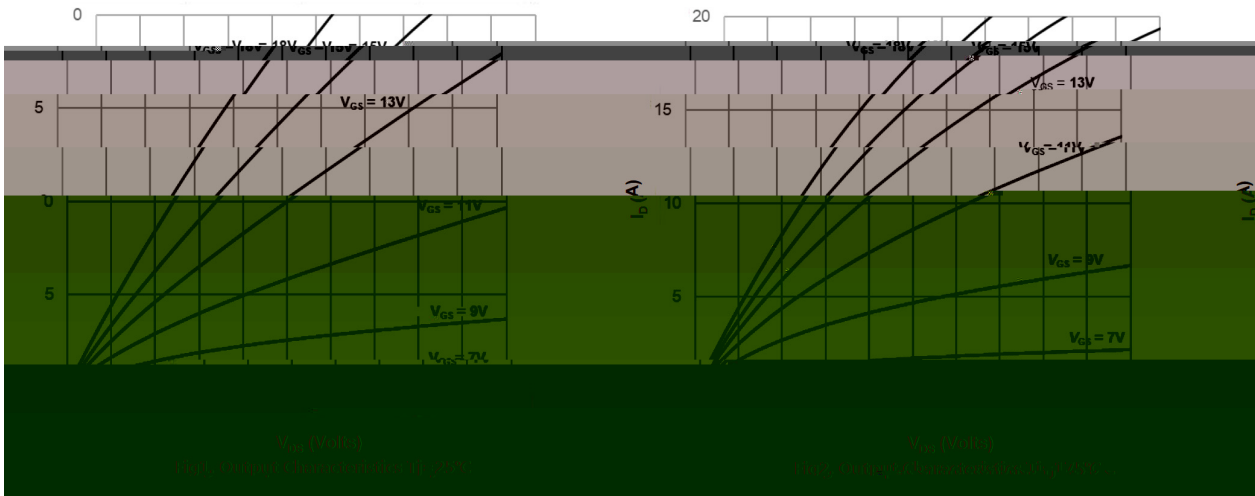


Fig.3 Typical Transfer Characteristics

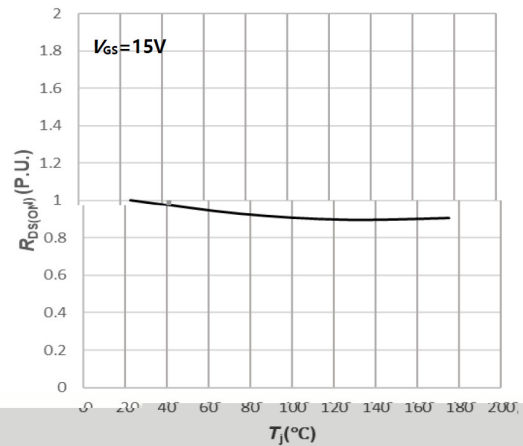


Fig.4 Normalized On-Resistance vs. Temperature

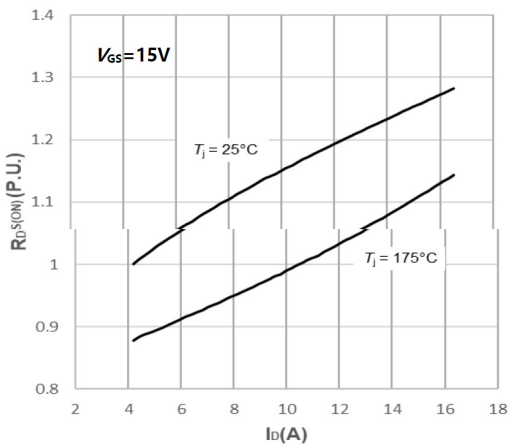


Fig.5 Normalized On-Resistance vs. Drain Current For Various Temperatures

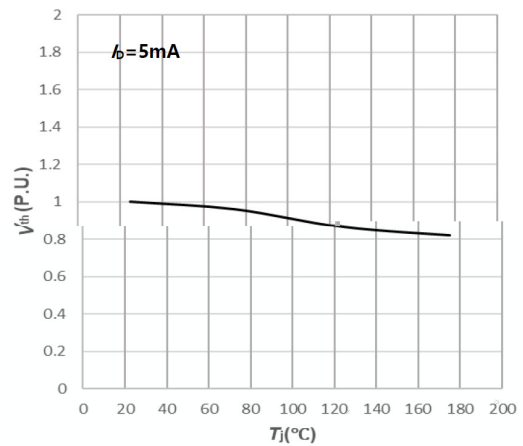
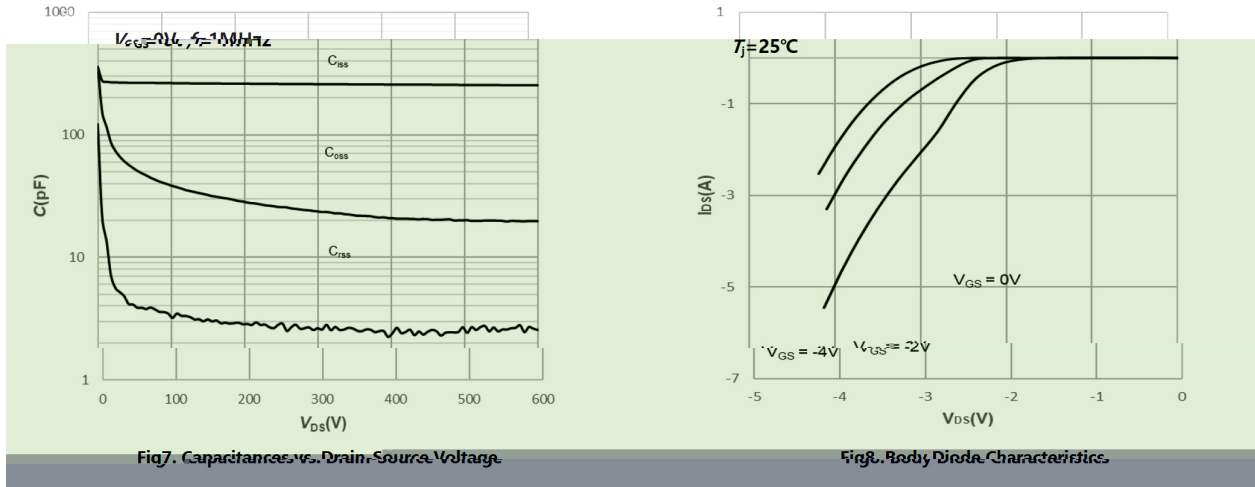


Fig.6 Normalized Threshold Voltage vs. Temperature

**/ Electrical Characteristic Curve**



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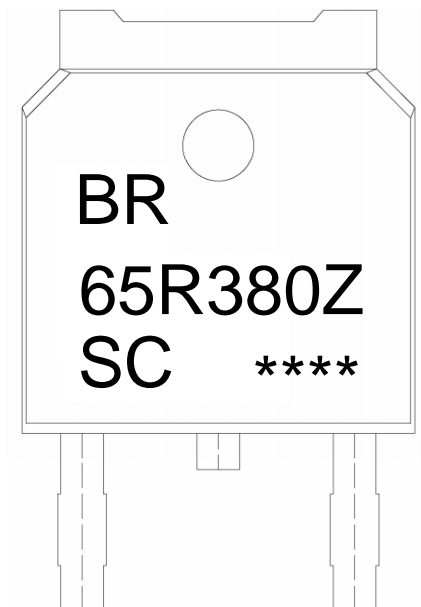
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DATA SHEET

## / Package Dimensions

**/ Marking Instructions**



BR

65R380Z

SC

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Note:

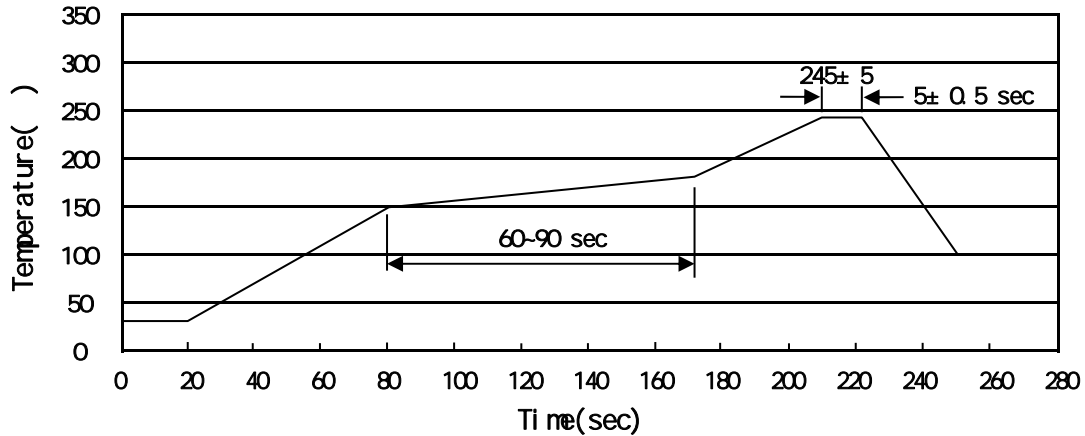
BR: Company Code

65R380Z: Product Type Code

SC: SiC

\*\*\*\*: Lot No. Code, code change with Lot No.

( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- |   |       |     |    |           |   |
|---|-------|-----|----|-----------|---|
| 1 | 150   | 180 | 60 | 90sec;    | 1.Preheating:150~180 , Time:60~90sec.   |
| 2 | 245±5 |     |    | 5±0.5sec; | 2.Peak Temp.:245±5 , Duration:5±0.5sec. |
| 3 |       |     | 2  | 10 /sec.  | 3. Cooling Speed: 2~10 /sec.            |

/ Resistance to Soldering Heat Test Conditions

260±5                      10±1 sec.                      Temp.:260±5                      Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type	Units					Dimension (unit mm <sup>3</sup> )		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
TO-252	2,500	2	5,000	6	30,000	13 x16	360x360x50	380x335x366

/ TUBE

Package Type	Units					Dimension (unit mm <sup>3</sup> )		
	Units/Tube	Tubes/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Tube	Inner Box	Outer Box
TO-251/252	75	48	3,600	5	18,000	526x20.5x5.25	555x164x50	575x290x180

/ Notices

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