

BRD65R650C

Rev.B May.-2022



DATA SHEET

修订记录 / Revised record

A	2022.4.21	ALL	AOS-AOD600A70		
B	2022.5.26	2,3,4,5	YC-RMX65R380SN_ReV1.0		

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描述 / Descriptions

TO-252 N 650V

N-CHANNEL 650V Super-Junction Power MOSFET in a TO-252 Plastic Package.

特征 / Features

$R_{DS(on)}$ C_{rss}

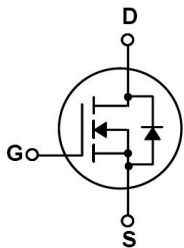
Low $R_{DS(on)}$, low gate charge, low C_{rss} , fast switching, HF Product.

用途 / Applications

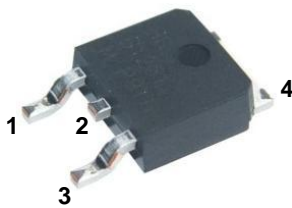
DC/DC

Suited for low voltage applications such as automotive, DC/DC Converters, and high efficiency switching for power management in portable and battery operated products.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN1 G

PIN 2 D

PIN 3 S

PIN 4 D

印章代码 / Marking

See Marking Instructions.

极限参数 / Absolute Maximum Ratings(Ta=25°C)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	650	V
Drain Current	$I_D(T_C=25^\circ\text{C})$	8.5	A
Drain Current - Pulsed	I_{DM}	34	A
Gate-Source Voltage	V_{GS}	± 30	V
Single Pulsed Avalanche Energy	E_{AS}	108	mJ
Avalanche Current	I_{AS}	5	A
Power Dissipation	$P_D(T_C=25^\circ\text{C})$	104	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$
Junction-to-Case	R_{JC}	1.2	$^\circ\text{C/W}$
Junction-to-Ambient	R_{JA}	55	$^\circ\text{C/W}$

电性能参数 / Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=250\mu\text{A}$	650	700		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=650V$ $V_{GS}=0V$ $T_J=25^\circ\text{C}$			1.0	μA
Gate-Body Leakage Current, Forward	I_{GSS}	$V_{GS}=\pm 30V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu\text{A}$	2.5	3.2	4.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=3.5A$		580	650	m
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_{SD}=1A$ $T_J=25^\circ\text{C}$			1.2	V
Gate Resistance	R_g	$V_{GS}=0V$ $f=1.0\text{MHz}$		13.5		
Input Capacitance	C_{iss}	$V_{DS}=100V$ $V_{GS}=0V$ $f=1.0\text{MHz}$		460		pF
Output Capacitance	C_{oss}			22		pF
Reverse Transfer Capacitance	C_{rss}			0.5		pF
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=400V$ $I_D=3.5A$ $V_{GS}=10V$ $R_G=25$		11.6		ns
Turn-On Rise Time	t_r			23		ns
Turn-Off Delay Time	$t_{d(off)}$			53		ns
Turn-Off Fall Time	t_f			35.8		ns

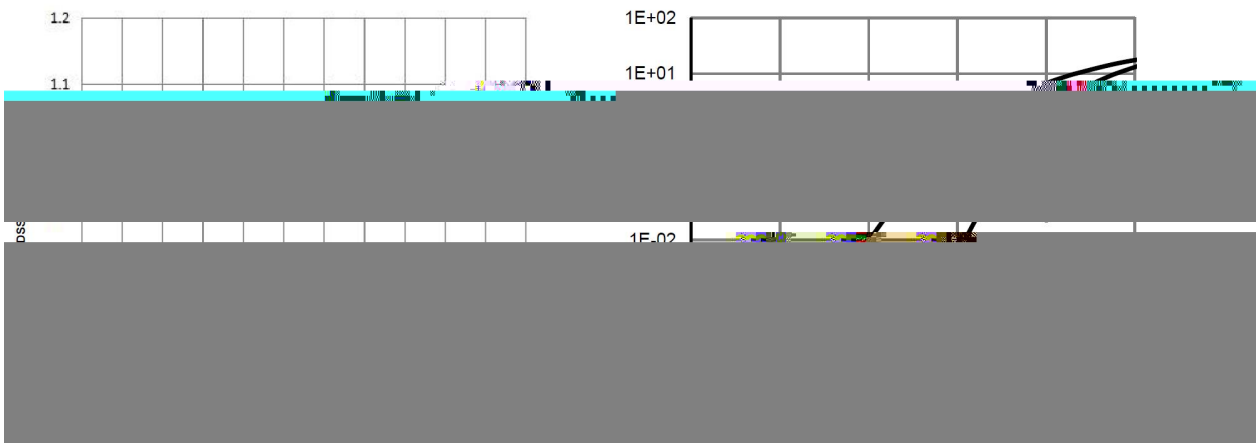
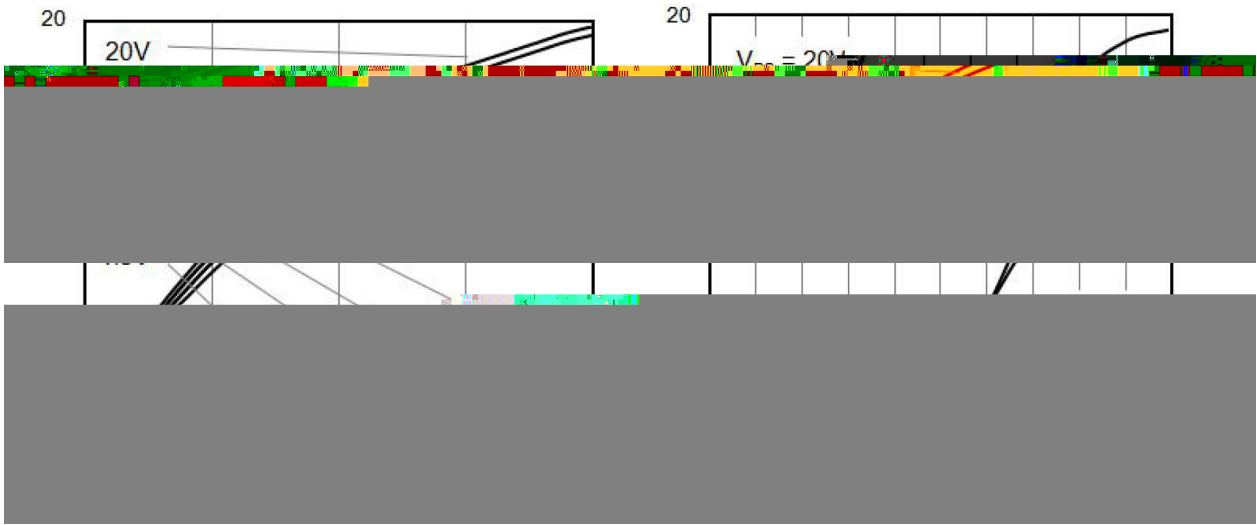


电性能参数 / Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Continuous Diode Forward Current	I_S				8.5	A
Total Gate Charge	Q_g	$V_{DS}=520V$ $I_D=3.5A$ $V_{GS}=10V$		13.3		nC
Gate-Source Charge	Q_{gs}			2.8		nC
Gate-Drain Charge	Q_{gd}			4.7		nC
Reverse recovery time	T_{rr}	$V_R=50V$, $I_F=3.5A$, $di_F/dt=100A/\mu s$		201		ns
Reverse recovery charge	Q_{rr}			1.3		uC

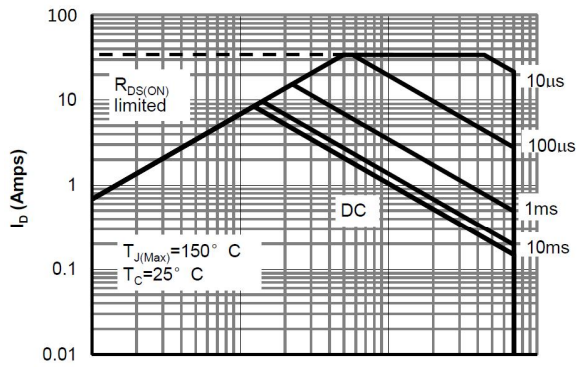
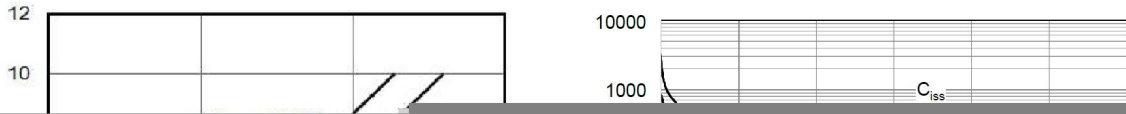


电参数曲线图 / Electrical Characteristic Curve

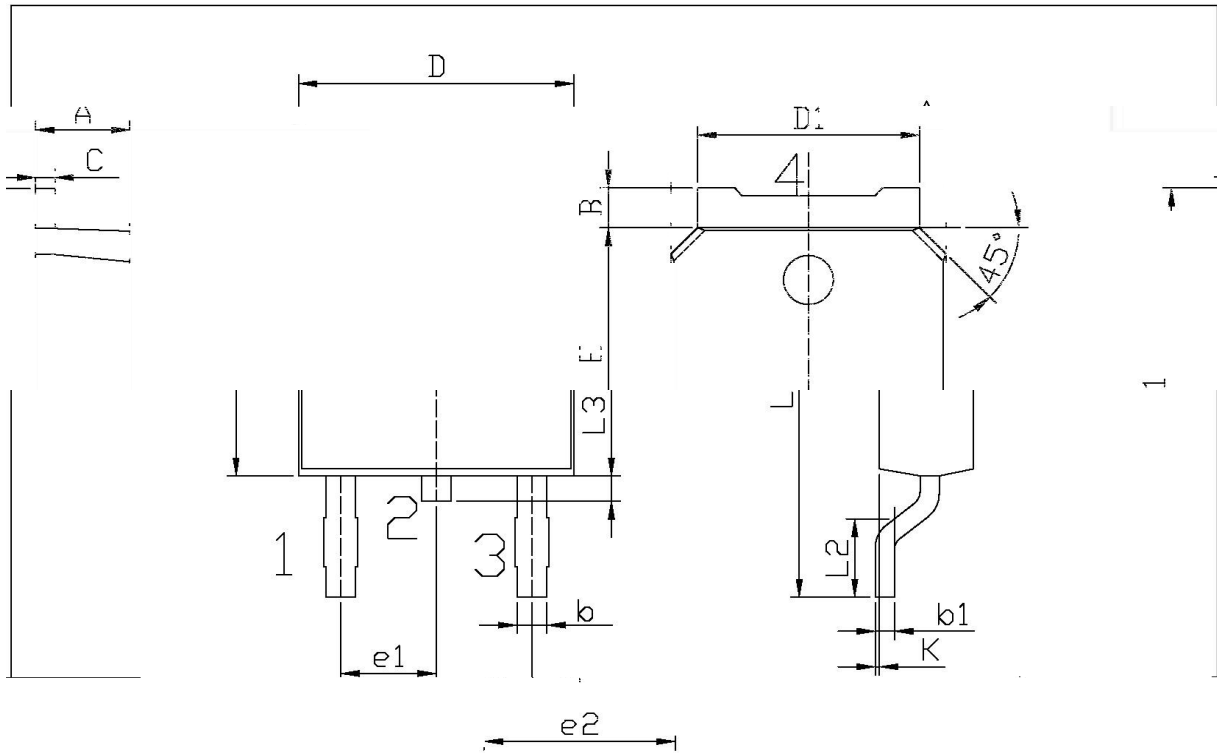




电参数曲线图 / Electrical Characteristic Curve



外形尺寸图 / Package Dimensions

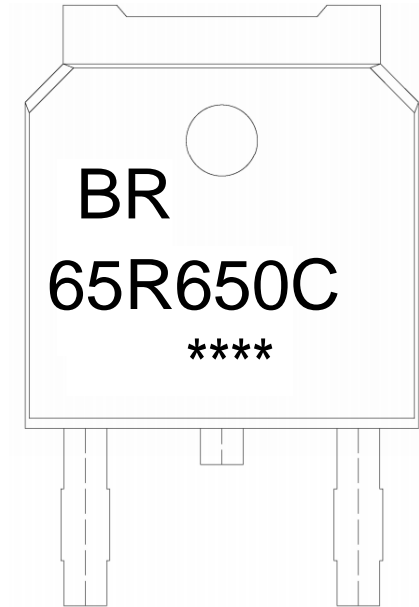


单位: mm

Dimensions In Millimeters		Dimensions In Millimeters	
Symbol	Value	Symbol	Value
A	2.20	A	2.40
B	0.95	B	1.05
C	0.45	C	0.55
D	6.45	D	6.75
D1	5.10	D1	5.50
E	1.70	E	2.00
L	0.55	L	0.75
L2	0.90	L2	1.10
L3	0.55	L3	0.75
e1	0.55	e1	0.75
e2	0.55	e2	0.75
b	0.55	b	0.75
b1	0.55	b1	0.75
K	0.55	K	0.75

T0-252

印章说明 / Marking Instructions



BR

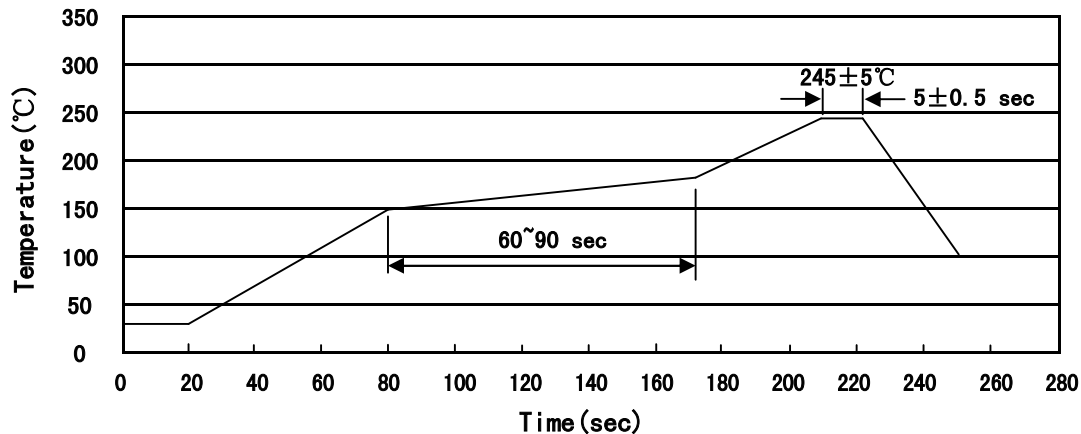
65R650C

Note:

BR: Company Code

65R650C: Product Type Code

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

回流焊温度曲线图(无铅) / Temperature Profile for IR Reflow Soldering(Pb-Free)


说明：

- 1、预热温度 150~180°C，时间 60~90sec;
- 2、峰值温度 245±5°C，时间持续为 5±0.5sec;
- 3、焊接制程冷却速度为 2~10°C/sec.

Note:

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

耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions

温度：260±5°C

时间：10±1 sec.

Temp.:260±5°C

Time:10±1 sec

包装规格 / Packaging SPEC.

卷盘包装 / REEL

Package Type	Units					Dimension (unit mm ³)		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box	Outer Box
TO-252	2,500	2	5,000	6	30,000	13" ×16	360×360×50	380×335×366

套管包装 / TUBE

Package Type	Units					Dimension (unit mm ³)		
	Units/Tube 只/套管	Tubes/Inner Box 套管/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Tube	Inner Box	Outer Box
TO-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180

使用说明 / Notices