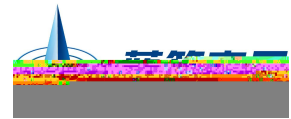


BRCS120P04DP

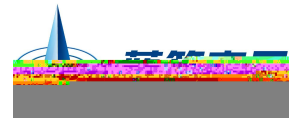
Rev.A Aug.-2022



A	2022.08.03	ALL	AOS-AOD4185		

BRCS120P04DP

Rev.A Aug.-2022

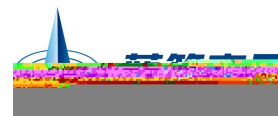


DATA SHEET

TO-252 P MOS

P-CHANNEL MOSFET in a TO-252 Plastic Package.

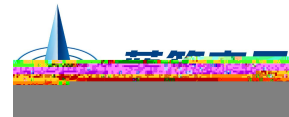
Low On-Resistance, fast switchi itchi itchi

/ Absolute Maximum Ratings($T_a=25^\circ\text{C}$)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V _{DS}	-40	V
Drain Current - Continuous		I _D (T _c =25)	-50	A
Drain Current – Pulsed		I _{DM}	-128	A
Gate-Source Voltage		V _{GS}	± 20	V
Power Dissipation		P _D (T _c =25)	62.5	W
Single Pulse Avalanche Energy(L=0.5mH)		E _{AS}	317.5	mJ
Avalanche Current(L=0.5mH)		I _{AS}	-31.5	A
Junction and Storage Temperature Range		T _J , T _{stg}	-55 to 150	°C
Thermal resistance, junction - ambient	t ≤ 10s	R _{θJA}	20	°C/ W
	Steady-State		50	
Thermal resistance, junction - case	Steady-State	R _{θJC}	2.0	

/ Electrical Characteristics($T_a=25^\circ\text{C}$)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=-250\mu\text{A}$ $V_{GS}=0\text{V}$	-40	-48		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-40\text{V}$ $V_{GS}=0\text{V}$			-1	μA
Gate-Body leakage current	I_{GSS}	$V_{DS}=0\text{V}$, $V_{GS}=\pm 20\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=-250\mu\text{A}$	-1	-1.7	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10\text{V}$, $I_D=-20\text{A}$		11.4	14	m Ω
		$V_{GS}=-4.5\text{V}$, $I_D=-10\text{A}$		15	20	
Diode Forward Voltage	V_{SD}	$I_S=-1\text{A}$, $V_{GS}=0\text{V}$			-1.2	V
Input Capacitance	C_{iss}	$V_{DS}=-25\text{V}$ $V_{GS}=0\text{V}$ $f=1.0\text{MHz}$		4760		pF
Output Capacitance	C_{oss}			2800		
Reverse Transfer Capacitance	C_{rss}			1960		
Gate resistance	R_g	$V_{GS}=0\text{V}$ $V_{DS}=0\text{V}$ $f=1\text{MHz}$		17.5		Ω
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=-10\text{V}$, $V_{DS}=-20\text{V}$, $I_D=-20\text{A}$		43		nC
Total Gate Charge	$Q_{g(4.5V)}$			19		
Gate Source Charge	Q_{gs}			7.2		
Gate Drain Charge	Q_{gd}			8.5		



/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=-10V$ $V_{DS}=-20V$ $R_L=1\Omega$ $R_{GEN}=3\Omega$		9.4		ns
Turn-On Rise Time	t_r			20		
Turn-Off Delay Time	$t_{d(off)}$			56		
Turn-Off Fall Time	t_f			32		

/ Electrical Characteristic Curve



/ Electrical Characteristic Curve

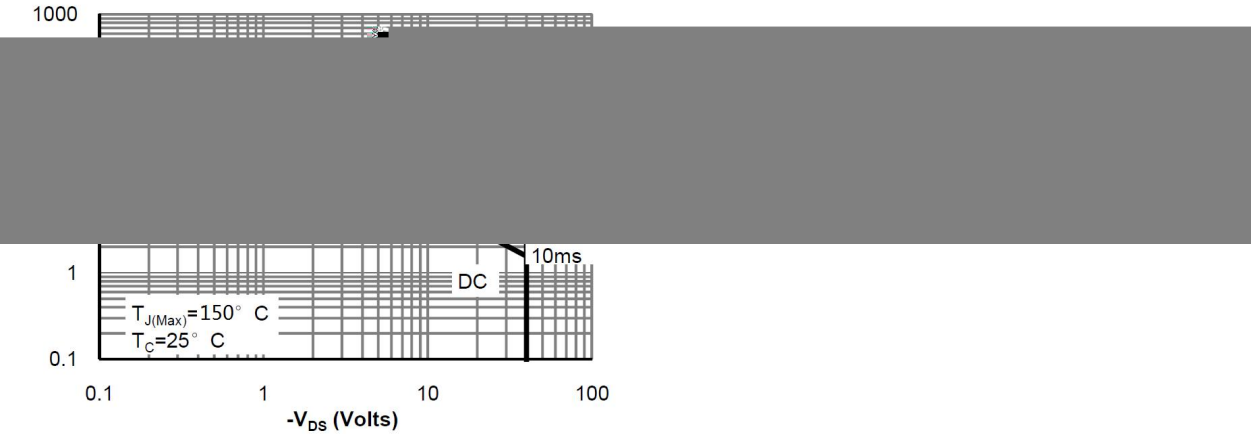
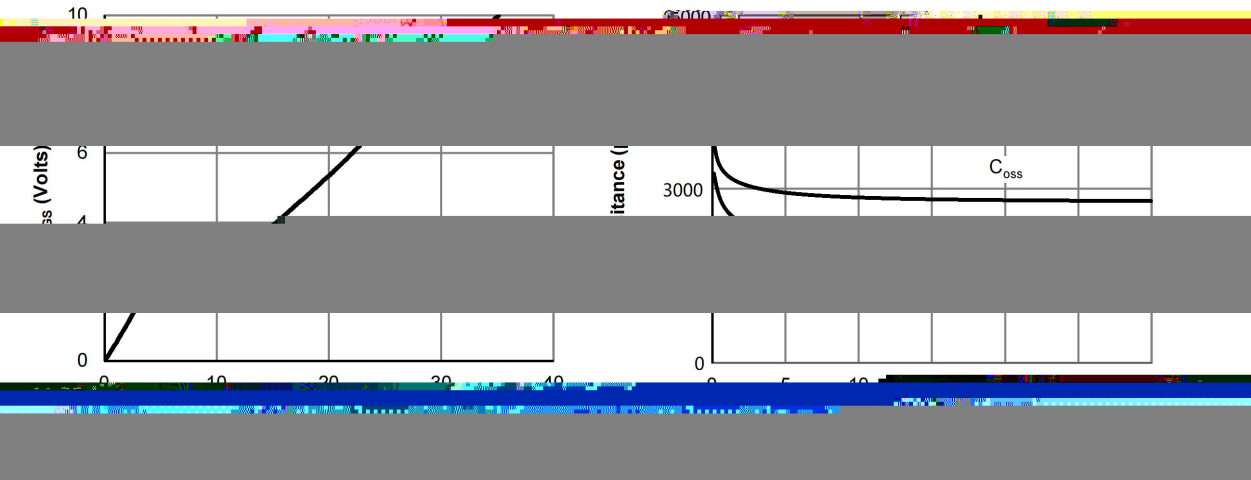
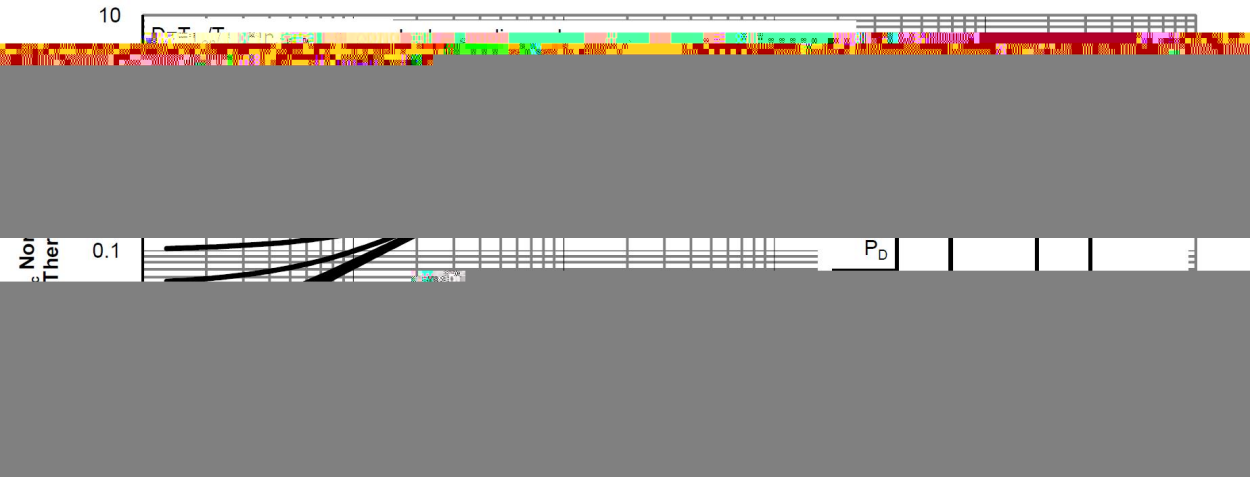
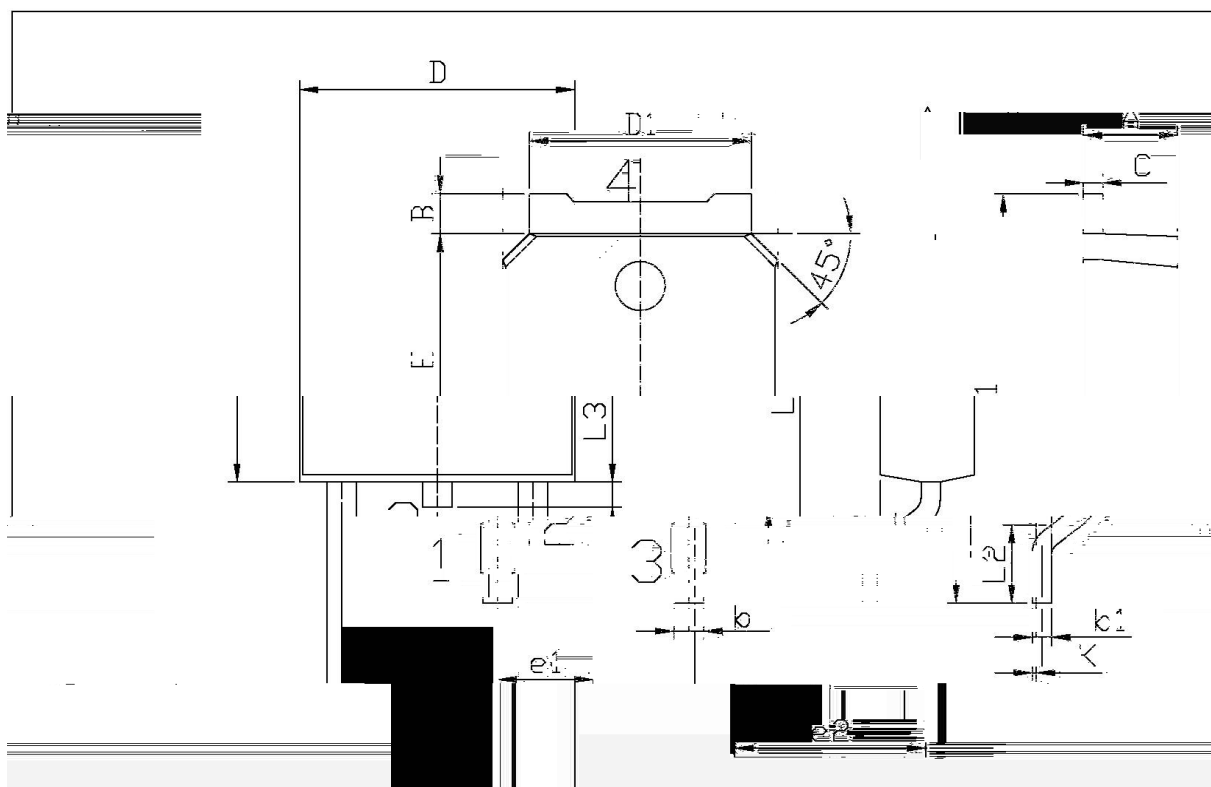


Figure 9: Maximum Forward Biased Safe Operating Area



/ Package Dimensions

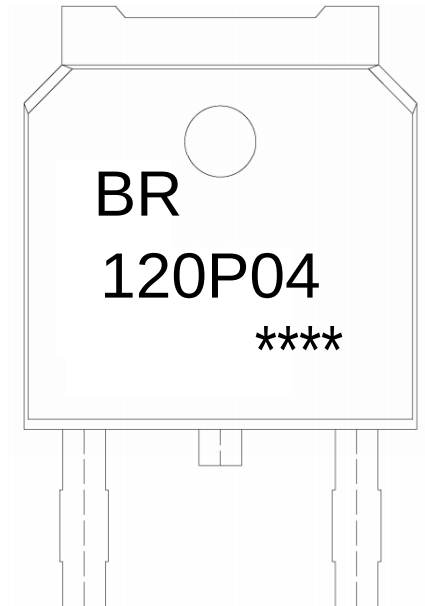


单位: mm

Dimer Dispersions In Milliliters			Dimer Dispersions In Milliliters		
Symbol	Wt.	Vol.	Symbol	Wt.	Vol.
A	9.9	6.25	A	7.20	4.30
B	2.24	2.31	B	0.95	0.28
C	0.40	0.41	C	0.45	0.38
D	0.35	0.55	D	9.85	10.35
E	0.2	1.70	E	0.45	0.55
F	6.45	6.75	F	0.60	0.90
G	0.10	0.70	G	0.09	0.09
H	0.10	0.70	H	0.09	0.09
I	0.10	0.70	I	0.09	0.09
J	0.10	0.70	J	0.09	0.09
K	0.10	0.70	K	0.09	0.09
L	0.10	0.70	L	0.09	0.09
M	0.10	0.70	M	0.09	0.09
N	0.10	0.70	N	0.09	0.09
O	0.10	0.70	O	0.09	0.09
P	0.10	0.70	P	0.09	0.09
Q	0.10	0.70	Q	0.09	0.09
R	0.10	0.70	R	0.09	0.09
S	0.10	0.70	S	0.09	0.09
T	0.10	0.70	T	0.09	0.09
U	0.10	0.70	U	0.09	0.09
V	0.10	0.70	V	0.09	0.09
W	0.10	0.70	W	0.09	0.09
X	0.10	0.70	X	0.09	0.09
Y	0.10	0.70	Y	0.09	0.09
Z	0.10	0.70	Z	0.09	0.09

TN-252

/ Marking Instructions



BR

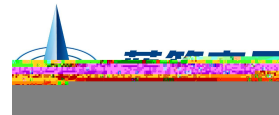
120P04

Note:

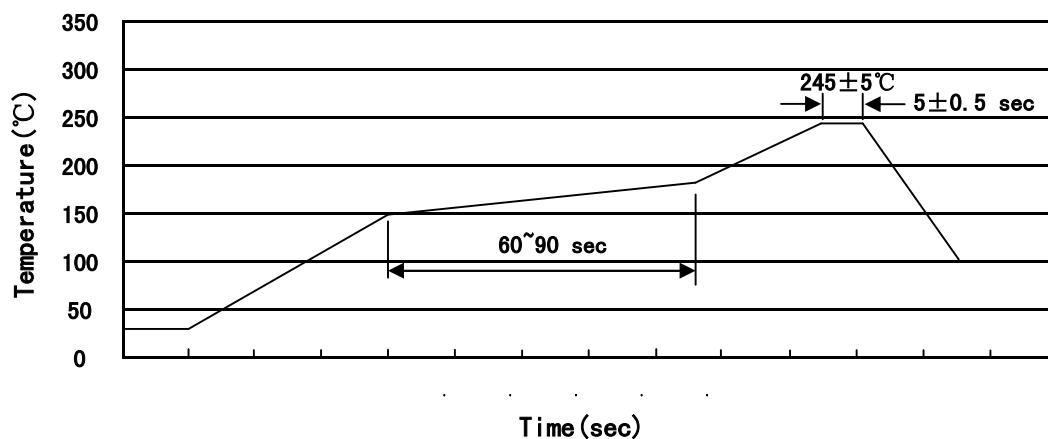
BR: Company Code

120P04: Product Type

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



() /



Note:

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

/ Resistance to Soldering Heat Test Conditions

260±5°C

10±1 sec.

Temp.:260±5°C

Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (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 盒	Outer Box 箱
TO-252	2,500	2	5,000	6	30,000	13" ×16	360×360×50	380×335×366

/ TUBE

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (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 套管	Inner Box 盒	Outer Box 箱
TO-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180

/ Notices