BRCS040N02DP

Rev.A May.-2023

DATA SHEET

TO-252 ṂṂȽ N ڻ ʄ ῷ Ẕ ᒣ

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

V_{DS} (V) = 20V I_D =95A (V_{GS} = ± 20V)

$R_{DS(ON)}$@4.5V ≤ 4mR(Typ.3.7mR)

$R_{DS(ON)}$@2.5V ≤ 6mR(Typ.5.5mR)

$R_{DS(ON)}$@2.0V ≤ 15mR(Typ.8mR)

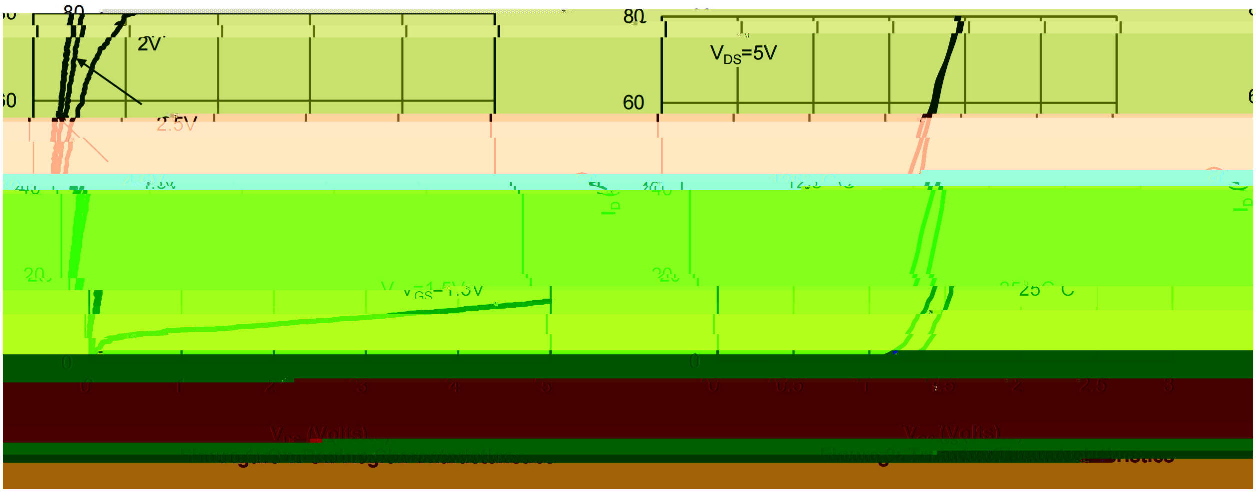
ῂ̣ ғ β HF Product.

v ̋Ω Parameter		˦ ᴺ Symbol	̋ΩӪ Rating	ᴅ Ʉ Unit
Drain-Source Voltage		V_{DSS}	20	V
Drain Current		I_D(Tc=25)	95	A
Drain Current - Pulsed		I_{DM}	212	A
Gate-Source Voltage		V_{GS}	±12	V
Avalanche Current		I_{AS}	24	A
Single Pulsed Avalanche Energy		E_{AS}	201	mJ
Power Dissipation		P_D(Tc=25)	55	W
Storage Temperature Range		T_{stg}	-55 150	
Thermal Resistance-Junction to Ambient	t ≤ 10s	$R_{\theta JA}$	20	/W
	Steady-State		50	
Thermal Resistance-Junction to Case	Steady-State	$R_{\theta JC}$	2.27	

v ̋Ω Parameter	˦ ᴺ Symbol	╜ ፧ ፐ ⊤ Test Conditions	ῳ ṇ Ӫ Min	Ɛ ʒ Ӫ Typ	ῳ ᷤ Ӫ Max	ᴅ Ʉ Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	20	24		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V V_{GS}=0V			1.0	μA
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±12V V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	0.4	0.7	1	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=4.5V I_D=15A		3.7	4	mΩ
		V_{GS}=2.5V I_D=10A		5.5	6	
		V_{GS}=2.0V I_D=6.0A		8	15	
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V I_S=1A			1.25	V
Gate resistance	R_g	V_{GS}=0V V_{DS}=0V, f=1MHz		2.2		Ω
Input Capacitance	C_{iss}	V_{DS}=10V V_{GS}=0V f=1.0MHz		2700		pF
Output Capacitance	C_{oss}			370		
Reverse Transfer Capacitance	C_{rss}			360		
Total Gate Charge	Qg(4.5V)	V_{GS}=4.5V V_{DS}=10V I_D=20A		31		nC
Gate Source Charge	Q_{gs}			5.2		
Gate Drain Charge	Q_{gd}			8		

v ̈Ω̣ Parameter	ɣ ᴺ Symbol	╜ ⁏ᛐ ʈ Test Conditions	ῳ ṇ Ӫ Min	Ɛ ʒ Ӫ Typ	ῳ ᶾ Ӫ Max	ᴅ ɉ Unit
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V V_{DS}=10V R_L=0.5Ω R_{GEN}=3Ω		7.5		ns
Turn-On Rise Time	t_r			15		
Turn-Off Delay Time	$t_{d(off)}$			72		
Turn-Off Fall Time	tT					

/ Electrical Characteristic Curve



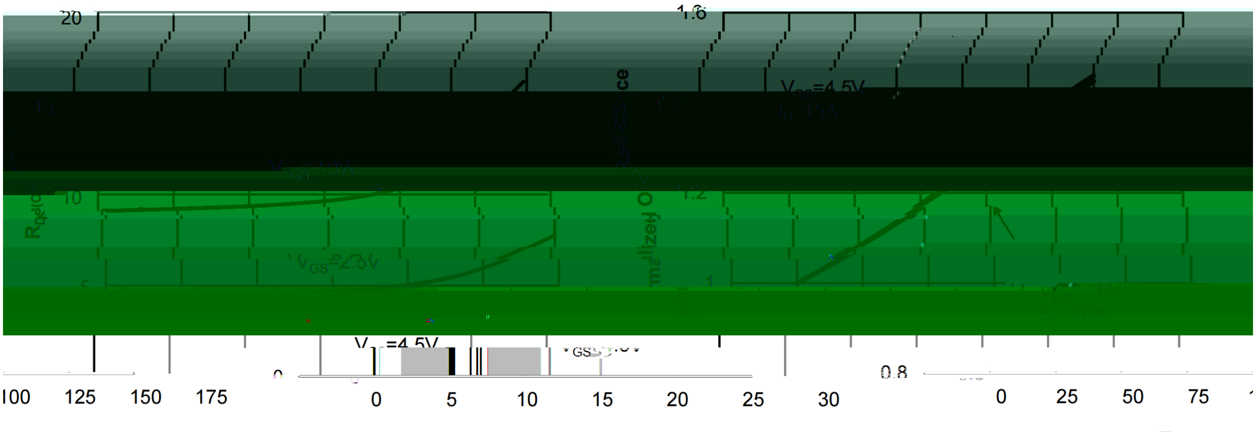
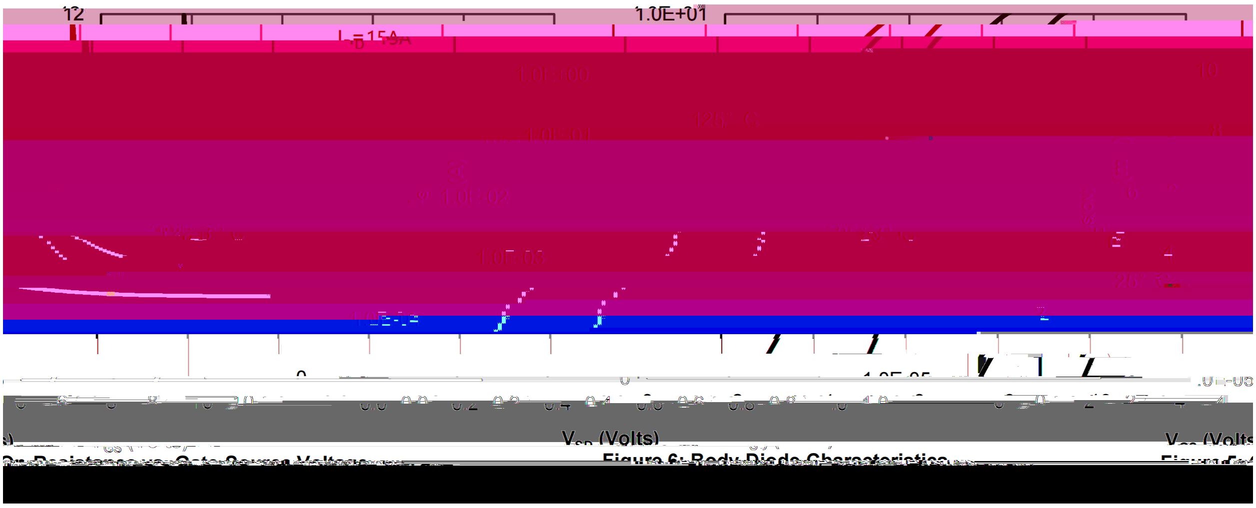
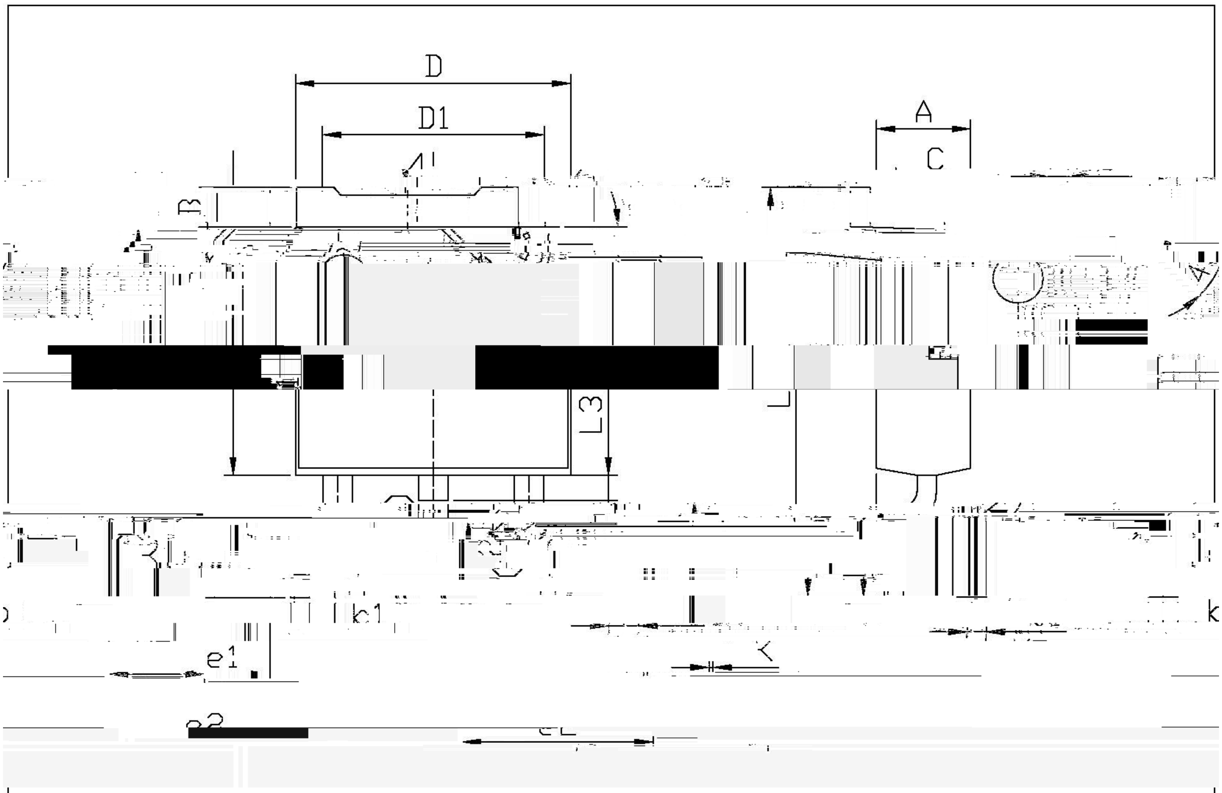


Figure 4: On-Resistance vs. Junction Temperature

Figure 3: On-Resistance vs. Drain Current and Gate Voltage



/ Package Dimensions

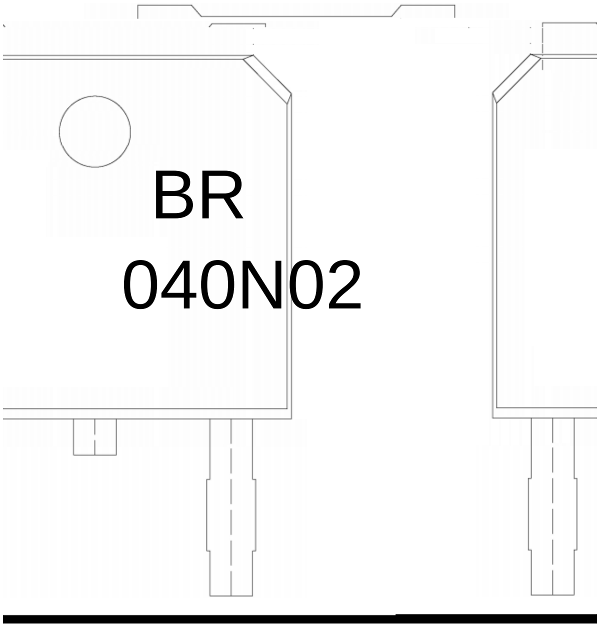


单位：mm

Symbol	Dimensions In Millimeters Min	Dimensions In Millimeters Max	Symbol	Dimensions In Millimeters Min	Dimensions In Millimeters Max
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	2.24	2.34	B	0.95	1.25
[illegible]	4.43	4.63	b	0.70	0.90
[illegible]	9.85	10.35	b1	0.45	0.55
C	0.45	0.55	[illegible]	1.50	[illegible]
[illegible]	6.45	6.75	L3	0.60	0.90
D1	5.10	5.50	K	0.00	0.10

TO-252

/ Marking Instructions



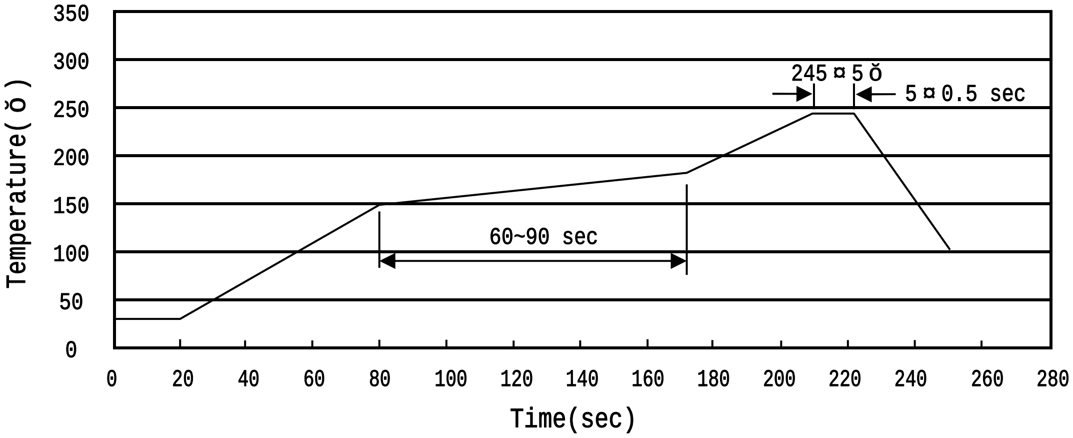
ب ˝ χ

BR χ	ҥѫ ʒ ᴎ Ꮒ
373Q35 χ	ҥѫ ʒ ᴺ Ꮒ
---- χ	ҥѫ ꜍ ғ ή ᴺ Ꮒ ι ɕ ꜍ ғ ή ᴺ ψ ק

Note:

BR:	Company Code
040N02:	Product Type Code
****:	Lot No. Code, code change with Lot No

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



ب ˝ χ
1 ꟾ ♬ □ ẙ 150 Ḱ 180 ꝉ ı ̀H ڑ 60 Ḱ 90sec;
2 Ś Ӫ □ ẙ 245 ° 5 ꝉ ı ̀H ڑ ʿY ʎ ᵯ 5 ° 0.5sec;
3 ì ˙ Ϡ ˛ ɔ ھ ẙ ᵯ 2 Ḱ 10 ꝉ /sec.

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

/ Resistance to Soldering Heat Test Conditions

□ ẙ χ 260 ° 5 ꝉ ̀H ڑ χ 10 ° 1 sec. Temp.:260±5 Time:10±1 sec

/ Packaging SPEC.

ɷ ˋ ɣ ⱡ / REEL

Package Type	Units					Dimension (unit mm^3)		
TO-252	2,500	2	5,000	6	30,000	13 ×16	360×360×50	380×335×366

˼ ٦ ɣ ⱡ / TUBE

Package Type	Units					Dimension (unit mm^3)		
TO-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180

/ Notices