

BRCS350P04DP

Rev.B Oct.-2024



DATA SHEET

/ Descriptions

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

/ Features

$V_{DS} (V) = -40V$ $I_D = -27.5 A$ ($V_{GS} = \pm 20V$)
 $R_{DS(ON)} @ 10V \leq 35mR$ (Typ.33mR)
 $R_{DS(ON)} @ 4.5V \leq 60mR$ (Typ.40mR)
。 HF Product.

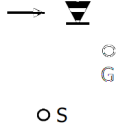
/ Applications

DC/DC

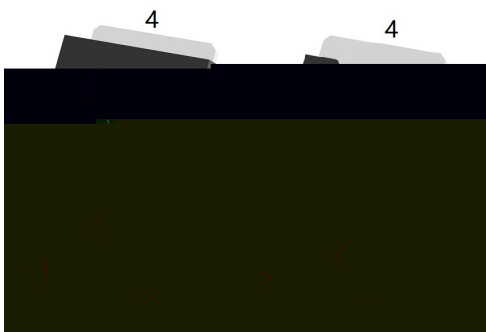
Suited for low voltage applications such as automotive, DC/DC Converters, and high efficiency switching for power management in portable and battery operated products.

/ Equivalent Circuit

— o D —



/ Pinning



PIN 1 G PIN 2 D PIN 3 S PIN 4 D

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings(Ta=25)

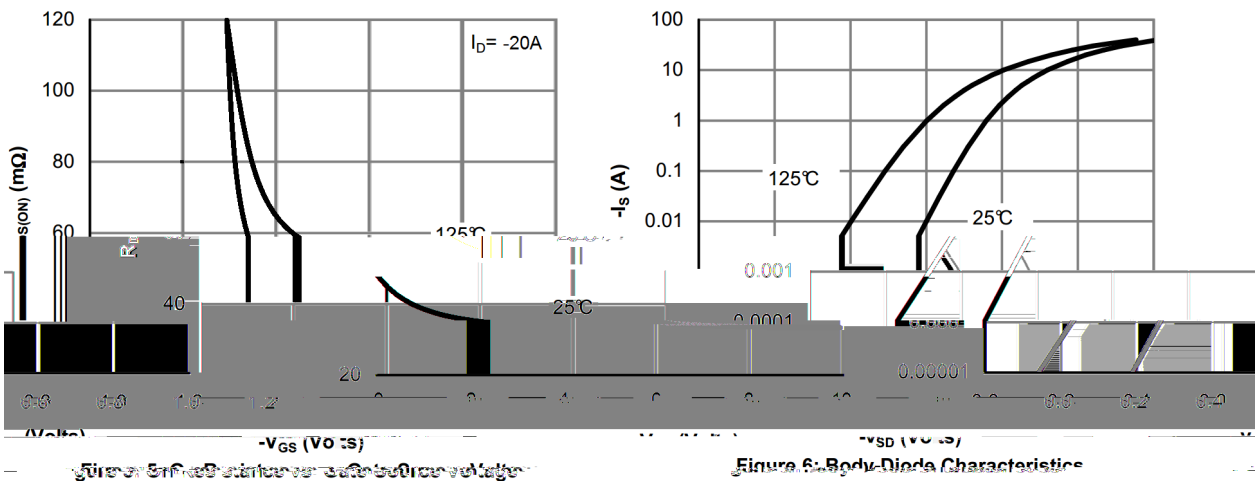
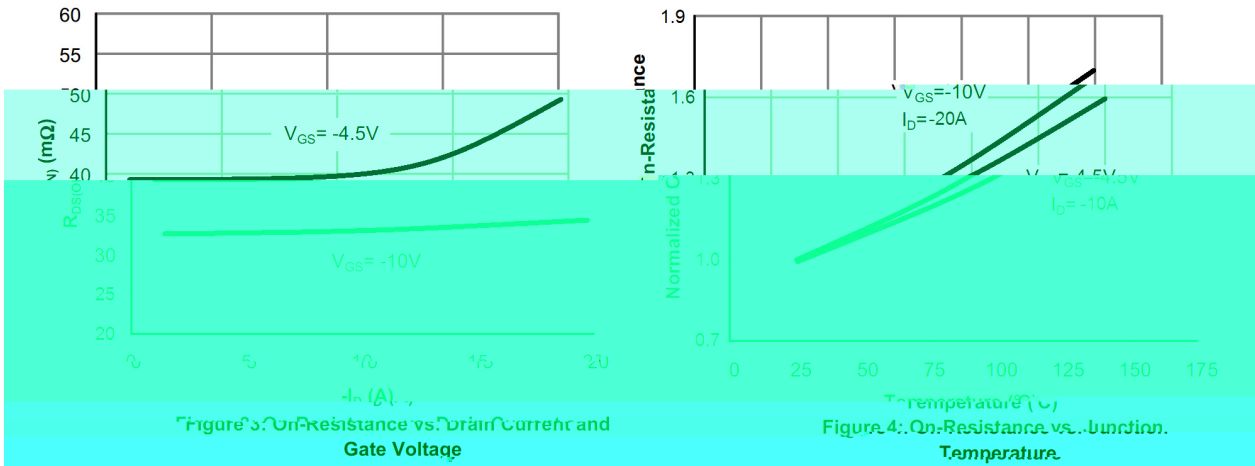
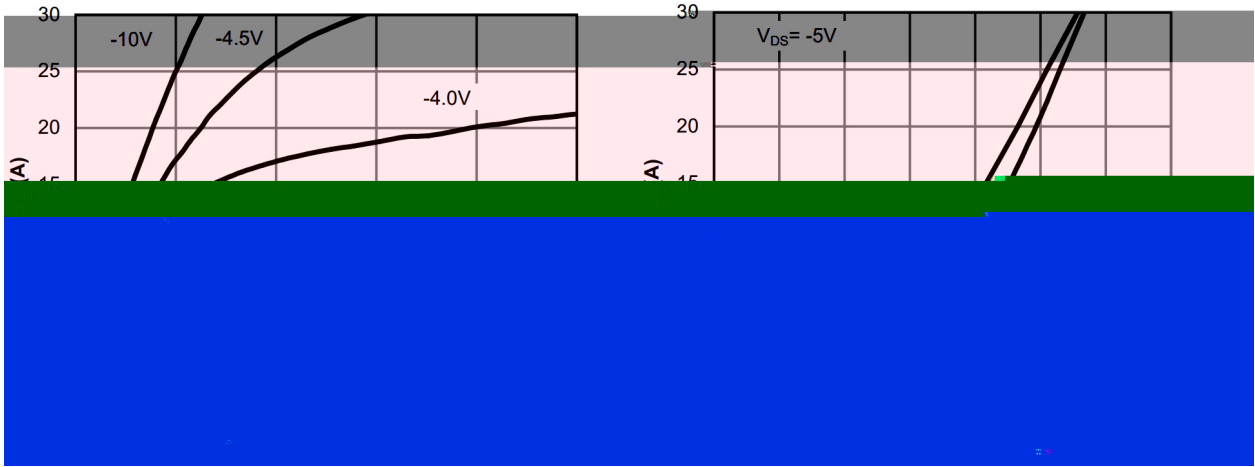
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	-40	V
Drain Current		$I_D(T_C=25^\circ\text{C})$	-27.5	A
Drain Current - Pulsed		I_{DM}	-87	A
Gate-Source Voltage		V_{GS}	± 20	V
Avalanche Current		I_{AS}	13	A
Single Pulsed Avalanche Energy (L=0.5mH)		E_{AS}	54	mJ
Power Dissipation		$P_D(T_C=25^\circ\text{C})$	45	W
Storage Temperature Range		T_{stg}	-55~150	
Thermal Resistance-Junction to Ambient	$t \leq 10\text{s}$	$R_{\theta JA}$	25	°C/W
	Steady-State		50	
Thermal Resistance-Junction to Case	Steady-State	$R_{\theta JC}$	2.78	

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=-250$ A	-40	-46		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-40V$ $V_{GS}=0V$			1.0	A
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			± 0.1	A
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=-250$ A	-1.0	-1.4	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V$ $I_D=-20A$		33	35	m
		$V_{GS}=-4.5V$ $I_D=-10A$		40	60	
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=-1A$			-1.2	V
Gate resistance	R_g	$V_{GS}=0V$ $V_{DS}=0V,$ $f=1\text{MHz}$		9.5		
Input Capacitance	C_{iss}	$V_{DS}=-25V$ $V_{GS}=0V$ $f=1.0\text{MHz}$		1500		pF
Output Capacitance	C_{oss}			620		
Reverse Transfer Capacitance	C_{rss}			440		
Total Gate Charge	$Q_g(-10V)$	$V_{GS}=-10V$ $V_{DS}=-20V$ $I_D=-12A$		16.5		nC
Total Gate Charge	$Q_g(-4.5V)$			7.8		
Gate Source Charge	Q_{gs}			4.2		
Gate Drain Charge	Q_{gd}			3.8		

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=-10V$ $V_{DS}=-20V$ $R_L=1.6\ \Omega$ $R_{GEN}=3$				

/ Electrical Characteristic Curve



/ Electrical Characteristic Curve

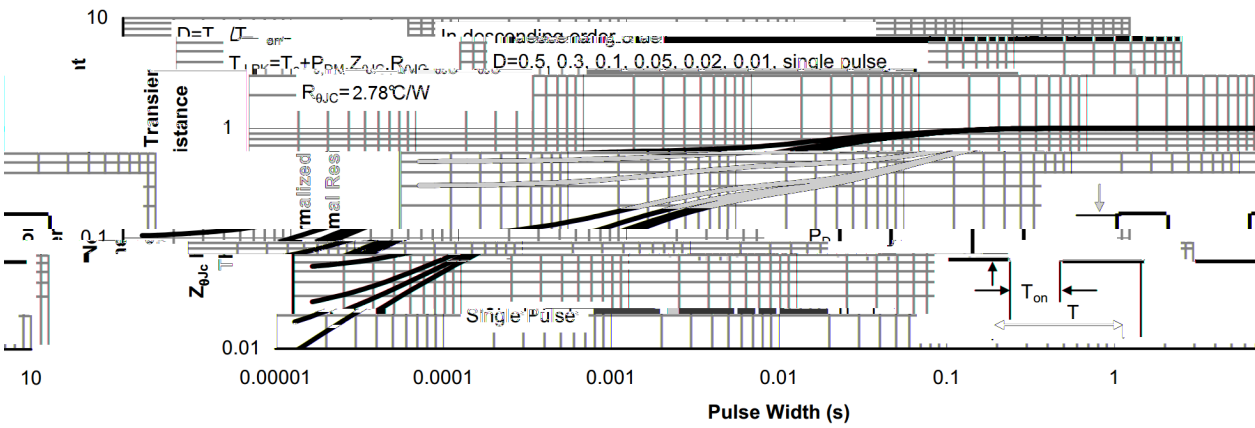
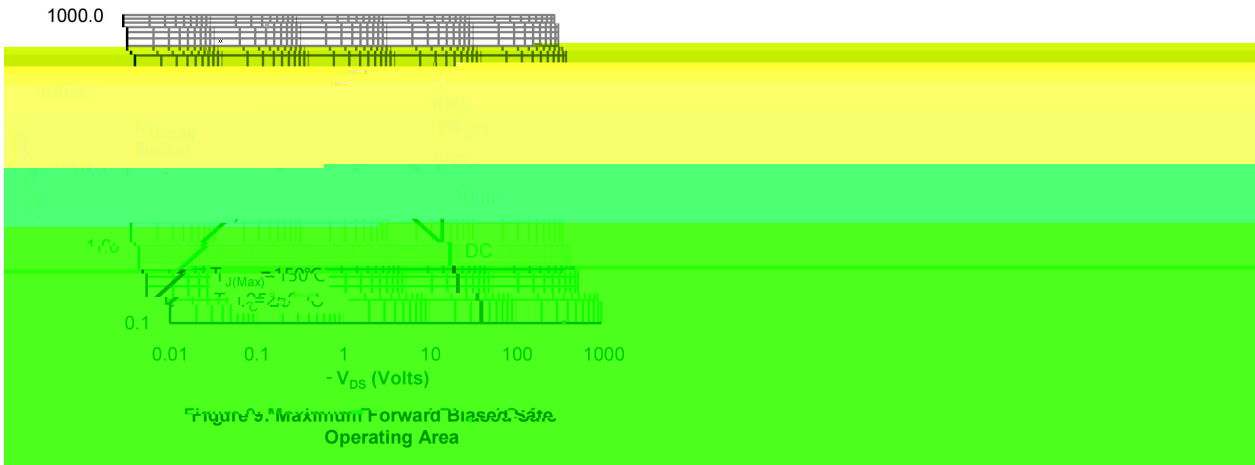
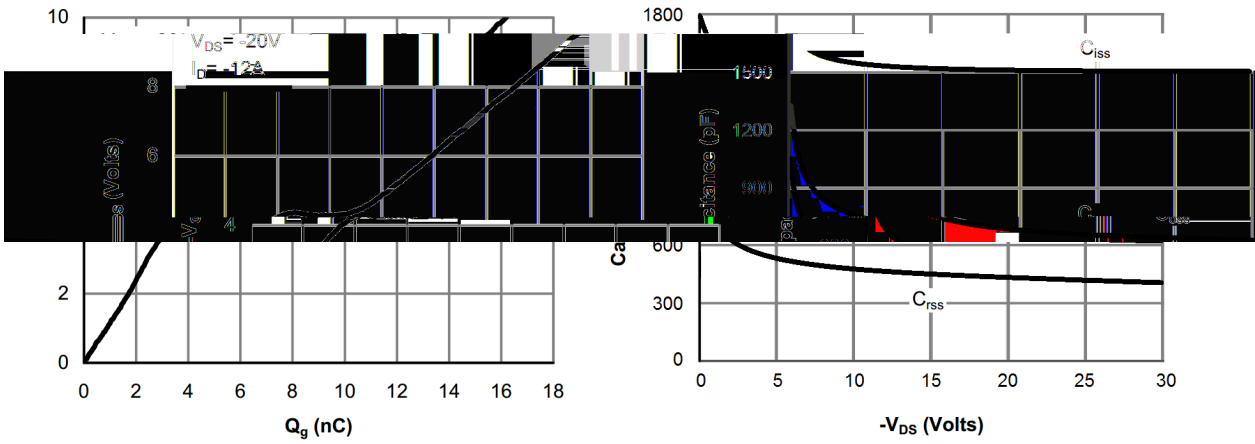
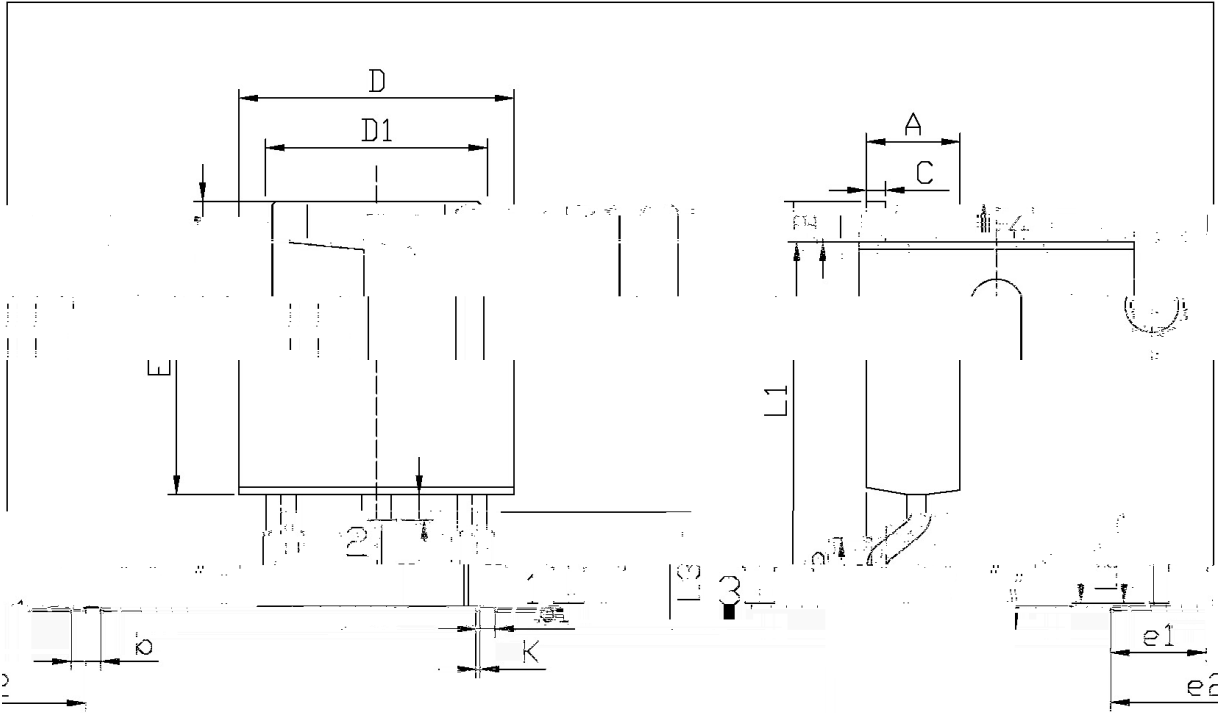


Figure 10: Normalized Maximum Transient Thermal Impedance

/ Package Dimensions

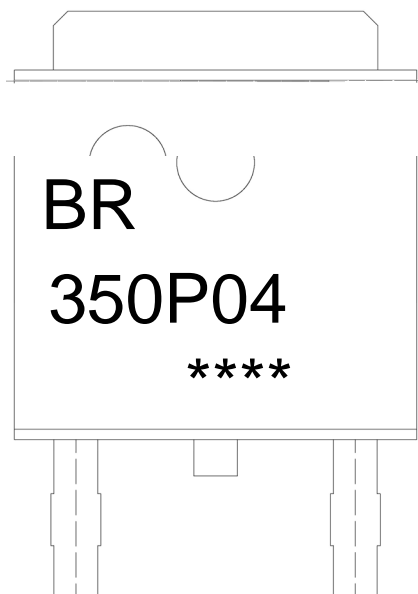


单位: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	2.20	2.40	E	5.95	6.25
B	0.95	1.25	e1	2.24	2.34
b	0.50	0.90	e2	4.43	4.73
b1	0.45	0.55	L1	9.45	9.95
C	0.45	0.55	L2	1.25	1.75
D	6.45	6.75	L3	0.60	0.90
D1	5.10	5.50	K	0.00	0.10

TO-252

/ Marking Instructions



BR

350P04

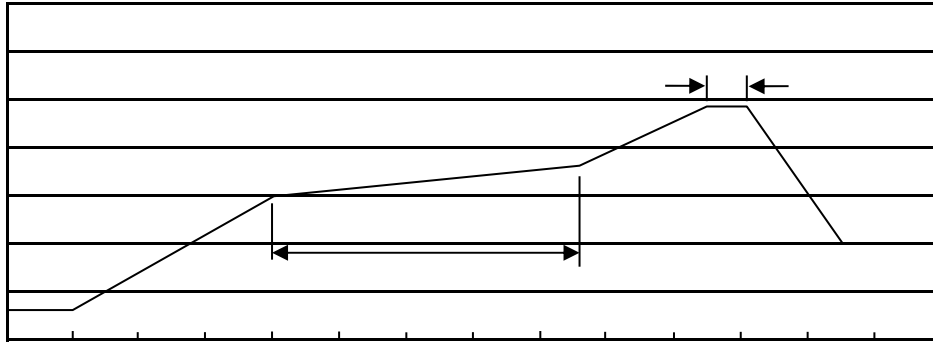
Note:

BR: Company Code

350P04: Product Type Code

****: 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 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" x16	360x360x50	380x335x366

/ 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	526x20.5x5.25	555x164x50	575x290x180

/ Notices