

BRCS150P04DPQ

Rev.A Mar.-2023

5 é / Descriptions

TO-252 .> // x 6 ?ú 3 « | • 'ož

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

α a / Features

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Low $R_{DS(on)}$, low gate charge, low C_{rss} , fast switching, Trench Technologies, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

Đ ÷ / Applications

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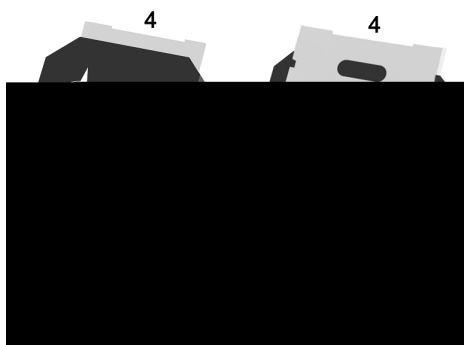
Suited for low voltage applications such as automotive, DC/DC Converters, and high efficiency switching for power management in portable and battery operated products, Meet the stringent requirements of automotive applications.

Ã w] Ô . / Equivalent Circuit



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• Ů - æ / Pinning



PIN1 y G

PIN 2 y D

PIN 3 y S

PIN 4 y D

, M V / Marking

• - ~ ^a ¢ ož See Marking Instructions.


Ã a ? d / Absolute Maximum Ratings(Ta=25 ;)

@ f Parameter		... Z Symbol	f > Rating	% y Unit
Drain-Source Voltage		V _{DSS}	-40	V
Drain Current		I _D (T _C =25 °C)	-40	A
Drain Current - Pulsed		I _{DM}	-115	A
Gate-Source Voltage		V _{GS}	±20	V
Avalanche Current		I _{AS}	24.5	A
Single Pulsed Avalanche Energy E _{AS} =0.5mJ		E _{AS}	210	mJ
Power Dissipation		P _D (T _C =25 °C)	52	W
Storage Temperature Range		T _{stg}	-55 ~ 150	
Thermal Resistance-Junction to Ambient	t = 0 ~ 10s	R _{θJA}	20	/W
	Steady-State		50	
Thermal Resistance-Junction to Case	Steady-State	R _{θJC}	2.4	

Ô4ì × ? d / Electrical Characteristics(Ta=25 ;)

@ f Parameter	... Z Symbol	y i Ú ^ Test Conditions	Â 4 > Min	Á ° > Typ	Â Ý > Max	% y Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =-250 A	-40			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} =±20V V _{DS} =0V			±0.1	A
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =-250 A	-1.0	-1.7	-2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V I _D =-20A		13	15	m
		V _{GS} =-4.5V I _D =-10A		17	30	
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=1MHz		6.5		
Input Capacitance	C _{iss}	V _{DS} =-25V V _{GS} =0V f=1.0MHz		2680		pF
Output Capacitance	C _{oss}			1150		
Reverse Transfer Capacitance	C _{rss}			870		
Total Gate Charge	Q _g (10V)	V _{GS} =-10V V _{DS} =-20V I _D =-20A		42		nC
Total Gate Charge	Q _g (4.5V)			18.6		
Gate Source Charge	Q _{gs}			7		
Gate Drain Charge	Q _{gd}			8.6		

Electrical Characteristics(Ta=25 ;)

@ f Parameter	... Z Symbol	y i Ú ^ Test Conditions	Â 4 > Min	Á ° > Typ	Â Ý > Max	% y Unit
Turn-On Delay Time	t _{d(on)}	V _{GS} =-10V V _{DS} =-20V R _L =1 i R _{GEN} =3		9.4		ns
Turn-On Rise Time	t _r			20		
Turn-Off Delay Time	t _{d(off)}			55		
Turn-Off Fall Time	t _f			30		

Electrical Characteristic Curve

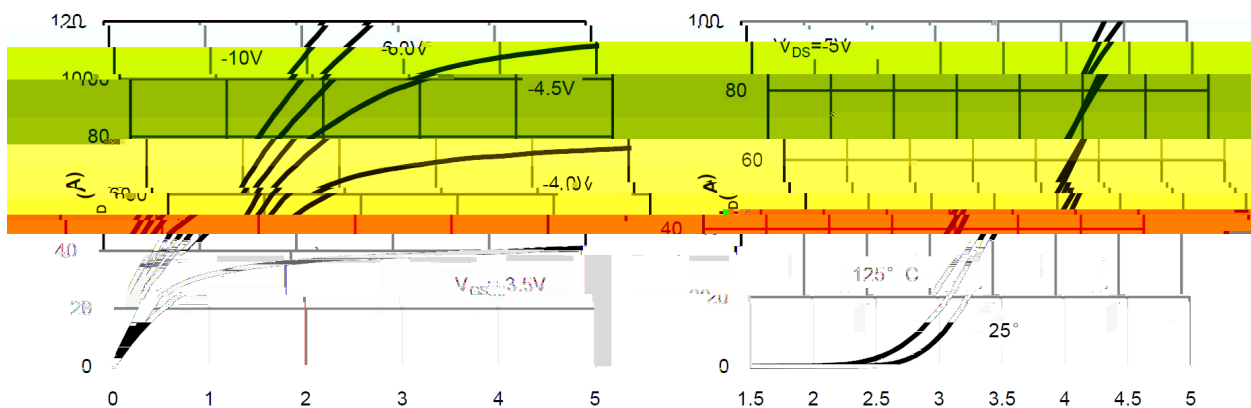


Figure 1: On-Region Characteristics

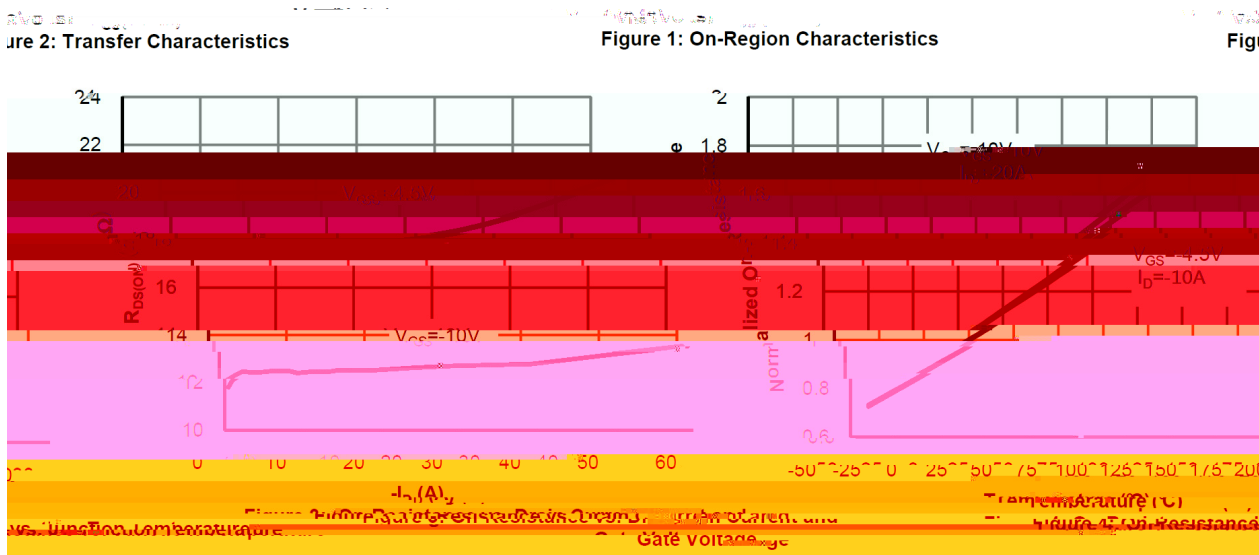
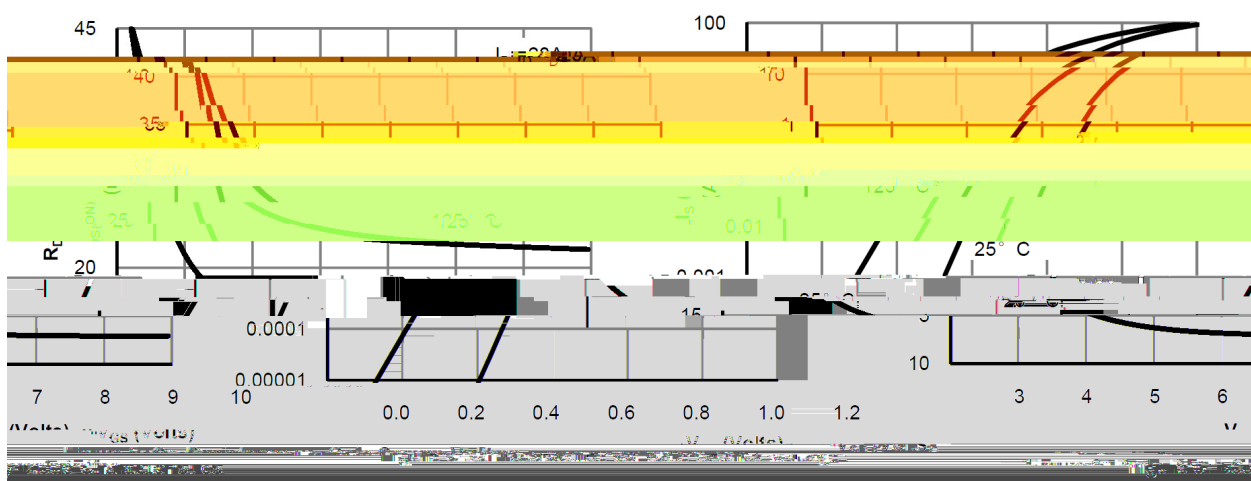


Figure 2: Transfer Characteristics



Electrical Characteristic Curve

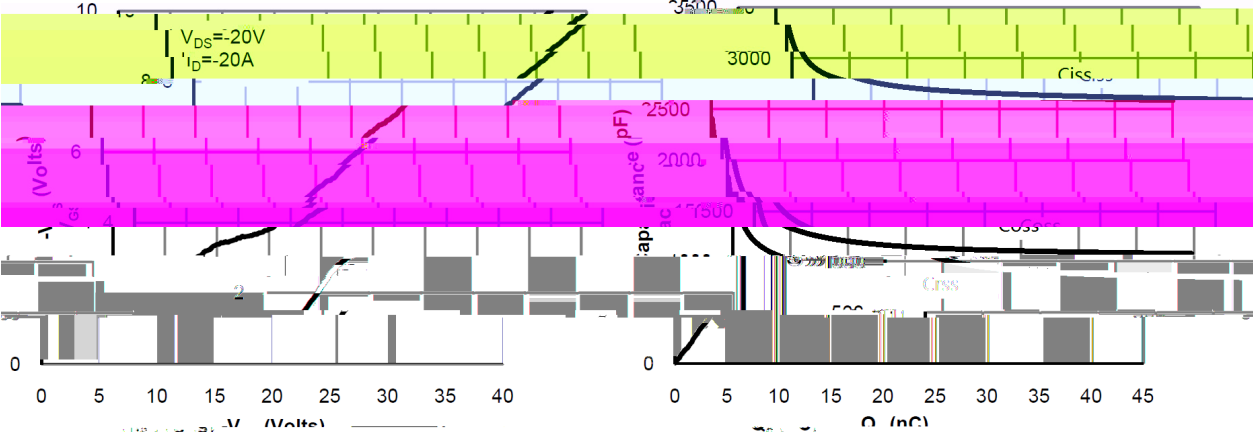


Figure 8: Capacitance Characteristics

Figure 7: Gate-Charge Characteristics

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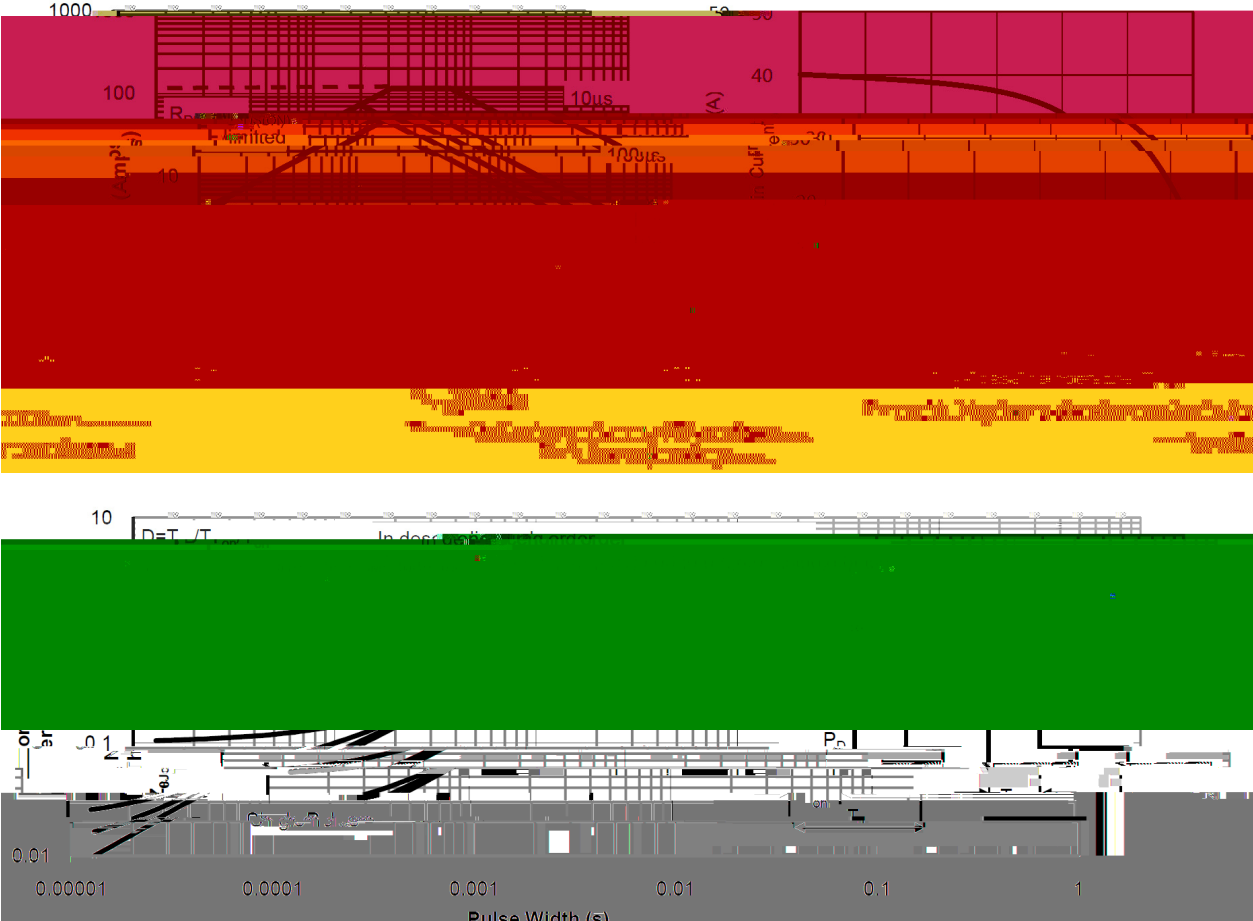
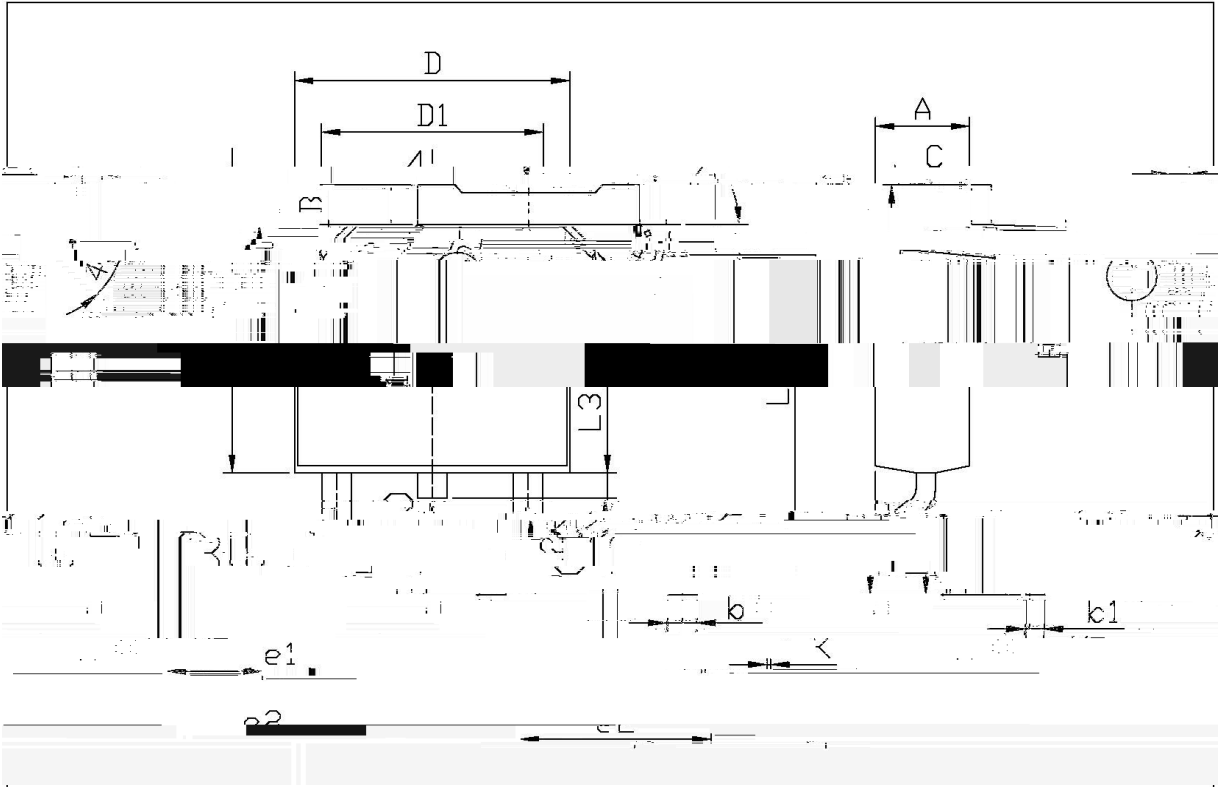


Figure 11: Thermal Characteristics

Ø □ =) ☎ / Package Dimensions

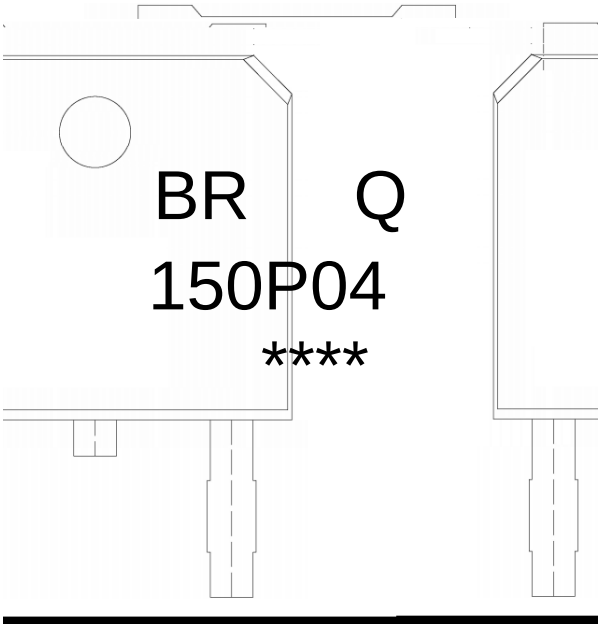


单位: mm

Dimensions in Millimeter			Dimensions in Mil/100th of an Inch		
Symbol	Min.	Max.	Symbol	Min.	Max.
B	0.76	0.95	e1	2.24	2.34
C	0.70	0.90	k2	4.43	4.72
D	0.95	1.15	L	0.55	0.95
D1	0.45	0.55	L3	1.25	1.50
K	0.00	0.10	Pin 1	6.45	6.75
Pin 1	0.00	0.10	Pin 1	1.35	0.60
Pin 1	0.00	0.10	Pin 1	5.10	5.50

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, M y f / Marking Instructions



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BR y	, [W A
Q y	V ñ —) í D } ö œ
150P04 y	° Z W A
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Note:	
BR:	Company Code
Q:	Automobile halogen-free product Code
150P04:	Product Type Code.
****:	Lot No. Code, code change with Lot No

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DATA SHEET