BRCS150P04DPQ

Rev.A Mar.-2023

DATA SHEET

5 é / Descriptions

TO-252 .> / / x 6 ?ú 3 « | • ’ož

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

¤ 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.

Ð ÷ / Applications

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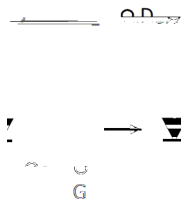
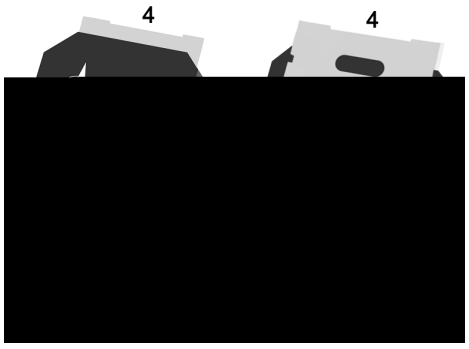
Suited for low voltage applications such as automotive, DC/DC Converters, and high efficiency switching for power management in portable and battery operated products, Meet the stringent requirements of automotive applications.

Ã W] Ô · / Equivalent Circuit



• Û - 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 ;)

@ ƒ Parameter		… Z Symbol	ƒ › Rating	% y Unit
Drain-Source Voltage		V_{DSS}	-40	V
Drain Current		I_D(Tc=25)	-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 ÄL=0.5mH Å		E_{AS}	210	mJ
Power Dissipation		P_D(Tc=25)	52	W
Storage Temperature Range		T_{stg}	-55 150	
Thermal Resistance-Junction to Ambient	t 0 10s	R ©JA	20	/W
	Steady-State		50	
Thermal Resistance-Junction to Case	Steady-State	R ©JC	2.4	

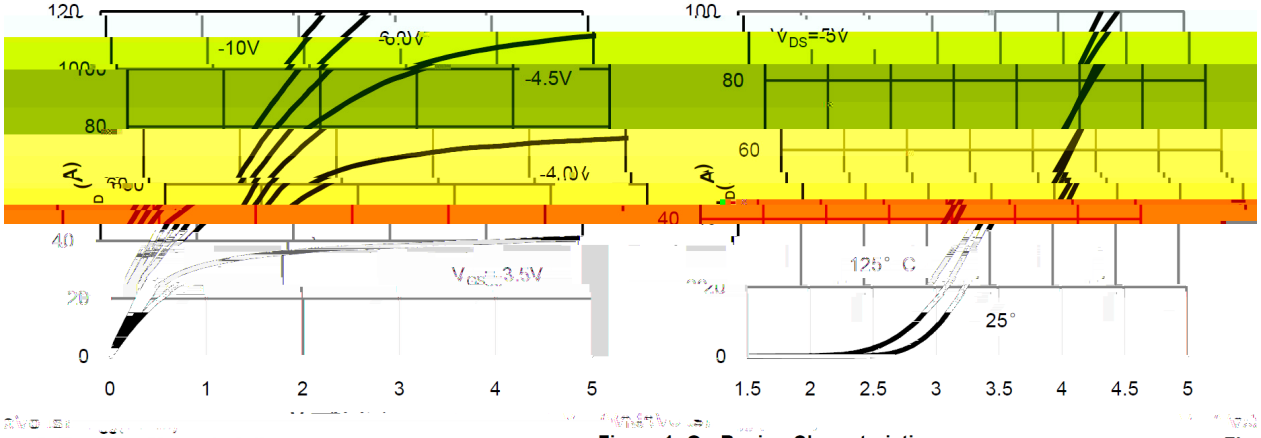
Ô4ì × ? d / Electrical Characteristics(Ta=25 ;)

@ ƒ Parameter	… Z Symbol	y ¡ Ú ^ Test Conditions	Â 4 › Min	Á º › 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		

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

@ ƒ Parameter	… Z Symbol	y ¡ Ú ^ Test Conditions	Â 4 › Min	Á º › Typ	Â Ý › Max	% y Unit
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=-10V V_{DS}=-20V R_L=1 ¡ 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		

Ô ? d • Ž ¢ / Electrical Characteristic Curve



ure 2: Transfer Characteristics

Figure 1: On-Region Characteristics

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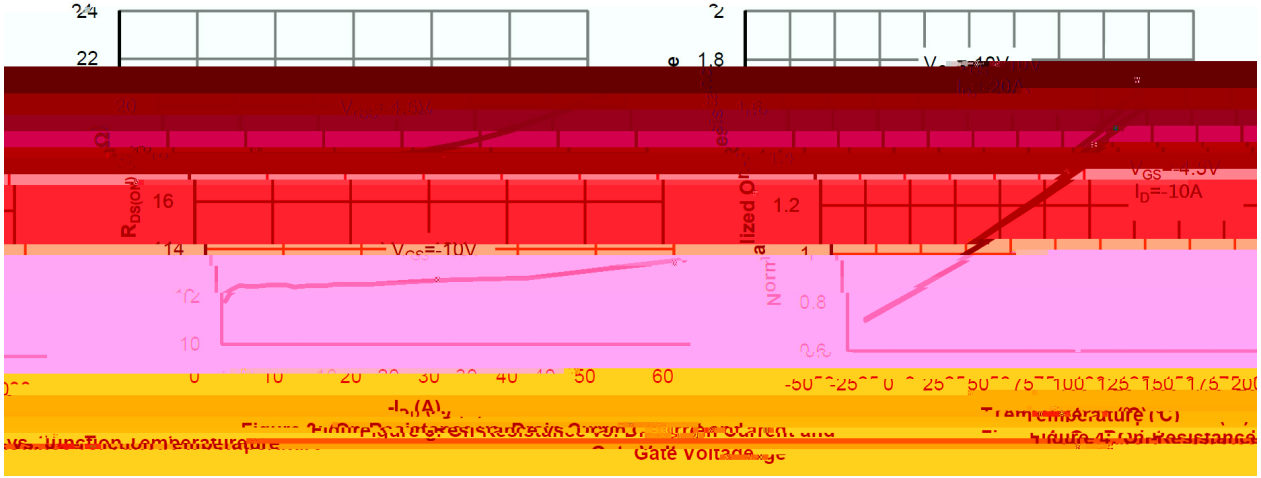
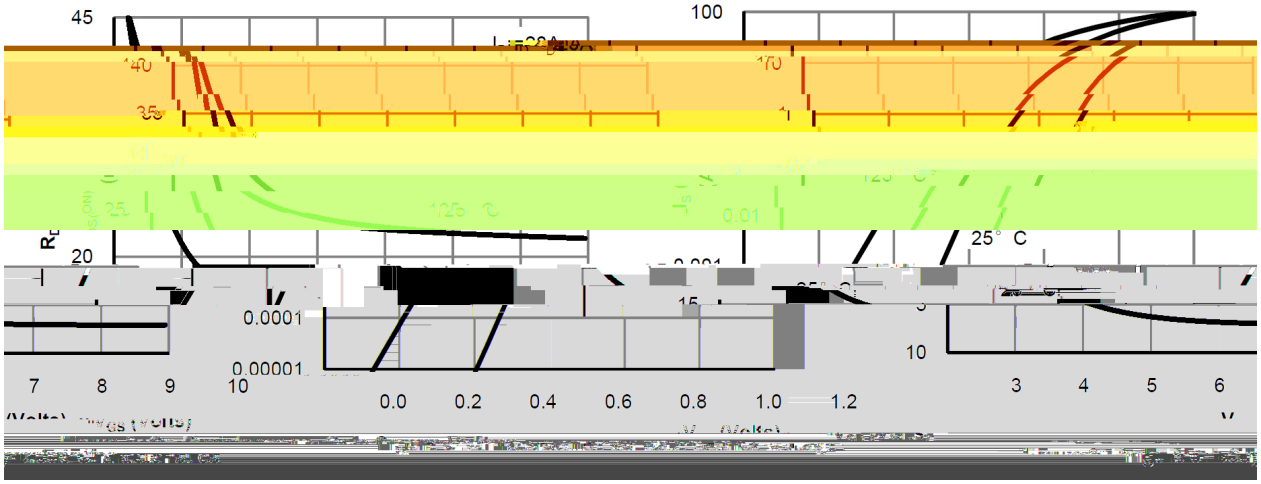
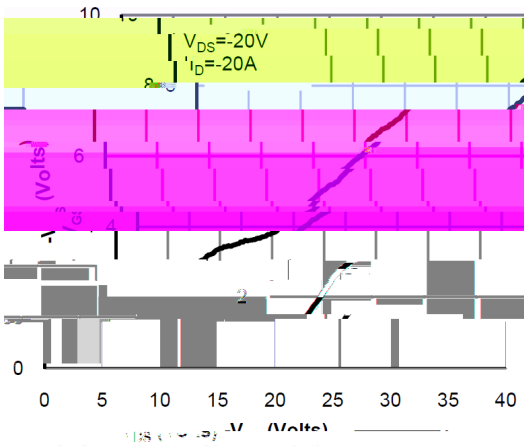




Ô ? d • Ž ¢ / Electrical Characteristic Curve



igure 8: Capacitance Characteristics

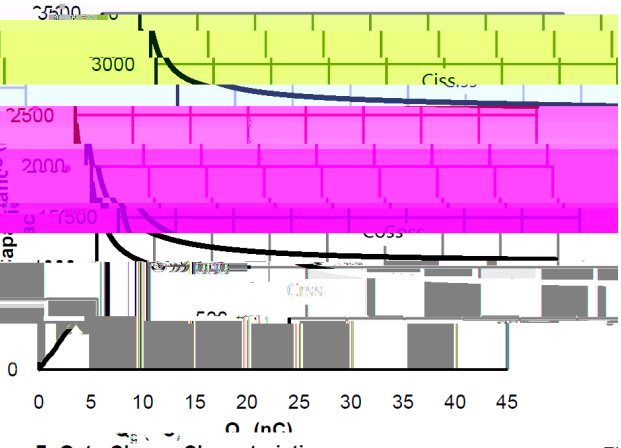


Figure 7: Gate-Charge Characteristics

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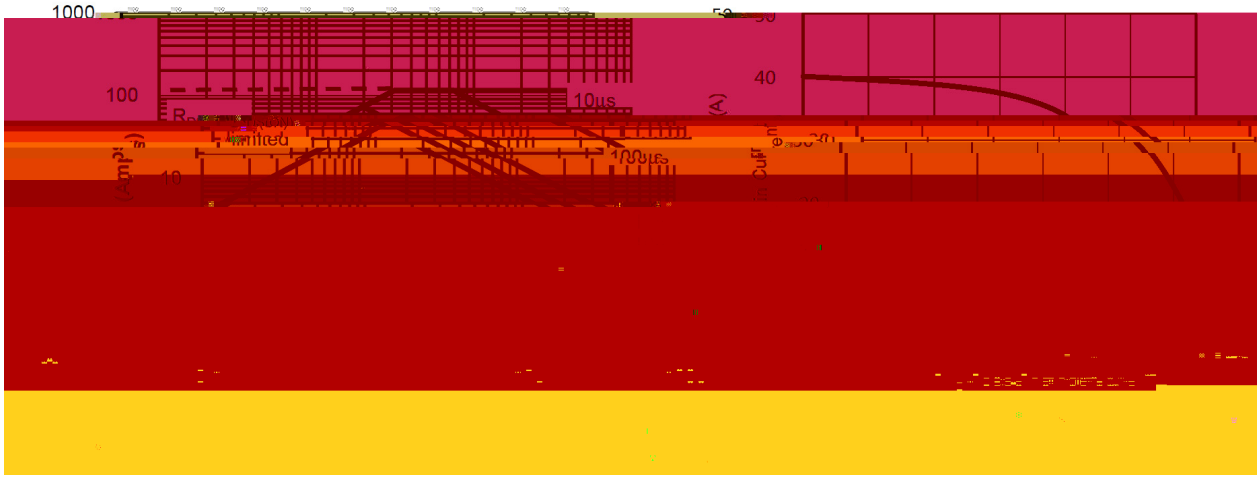
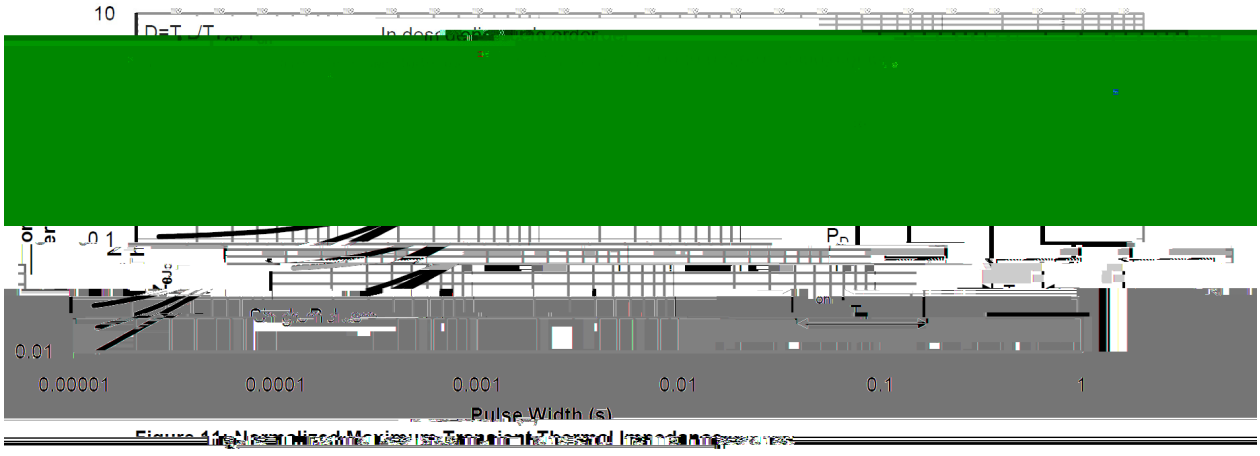
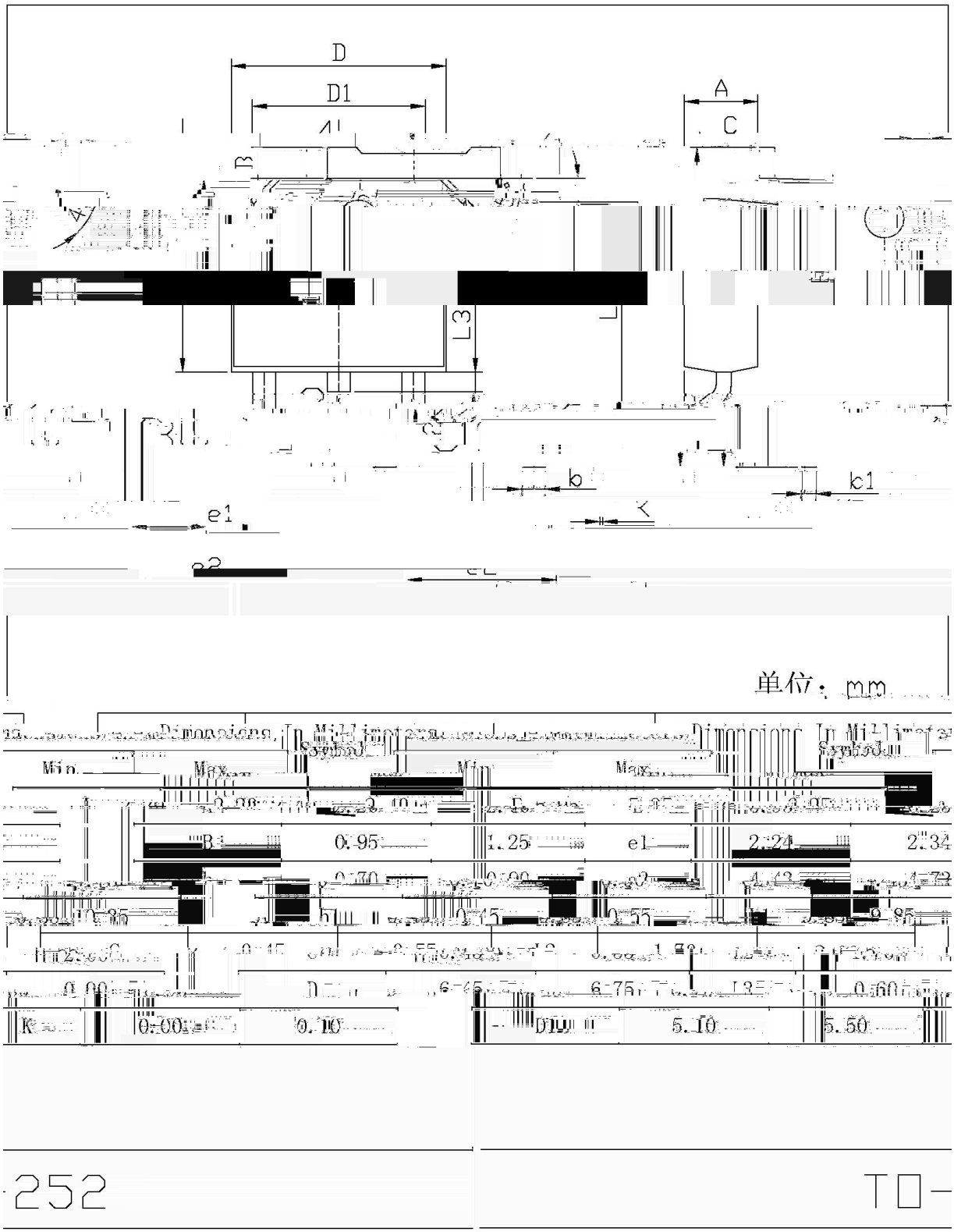
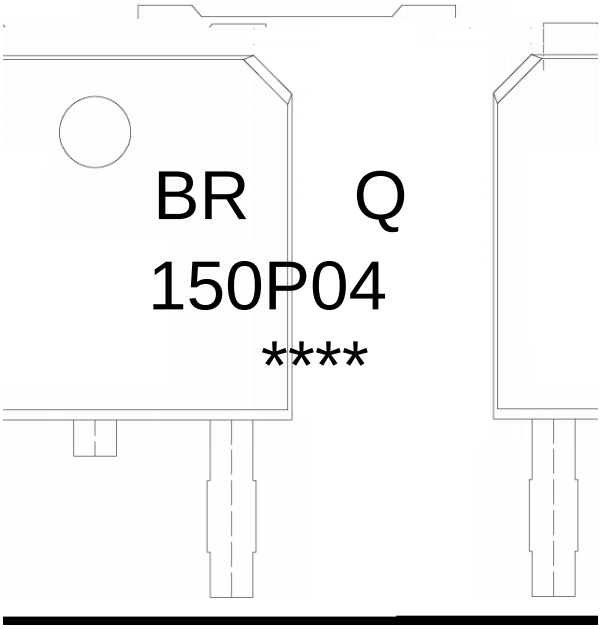




Ø ¤ =) ¢ / Package Dimensions



, M y ƒ / Marking Instructions



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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