

BRC500P10DP

Rev.A Aug.-2023

/ Descriptions

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

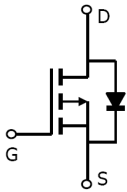
/ Features

$V_{DS}(V)=-100V$ $I_D=-28A$
 $R_{DS(ON)}@-10V<50m$ (Typ.42mR)
 $R_{DS(ON)}@-4.5V<55m$ (Typ.45mR)
HF Product.

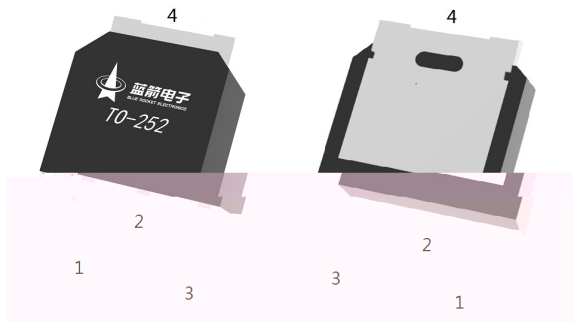
/ Applications

Power Management of Industrial DC/DC Converter.

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 D PIN 3 S PIN 4 D

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings(T_a=25)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V _{DS}	-100	V
Drain Current - Continuous		I _D (T _c =25)	-28	A
Drain Current – Pulsed		I _{DM}	-84	A
Gate-Source Voltage		V _{GS}	20	V
Power Dissipation		P _D (T _c =25)	85	W
Single Pulse Avalanche Energy(L=0.5mH)		E _{AS}	410	mJ
Avalanche Current(L=0.5mH)		I _{AS}	-32	A
Junction and Storage Temperature Range		T _j , T _{stg}	-55 to 150	
Thermal resistance, junction - ambient	Steady-State	R _{JA}	62	/ W
Thermal resistance, junction - case	Steady-State	R _{JC}	1.47	

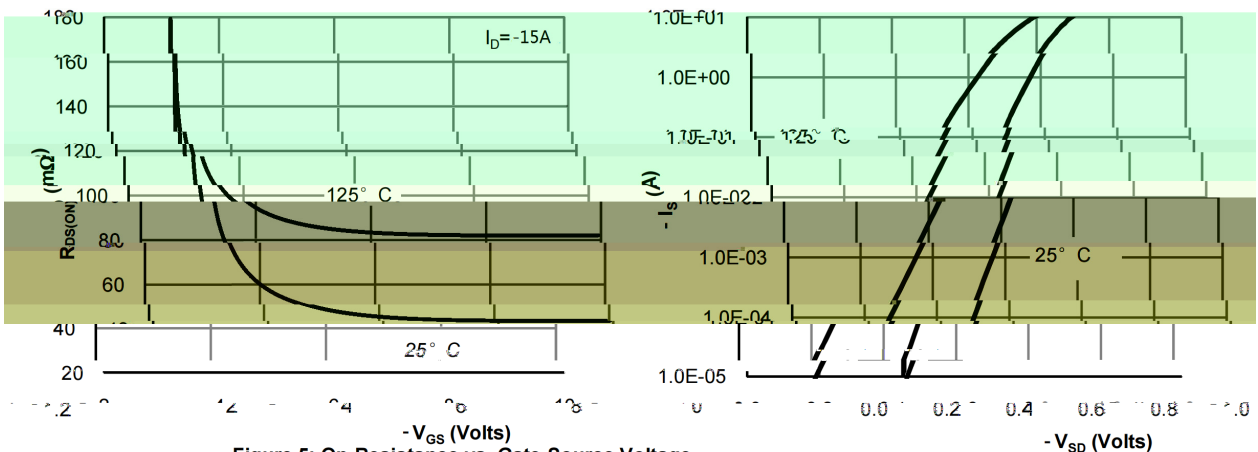
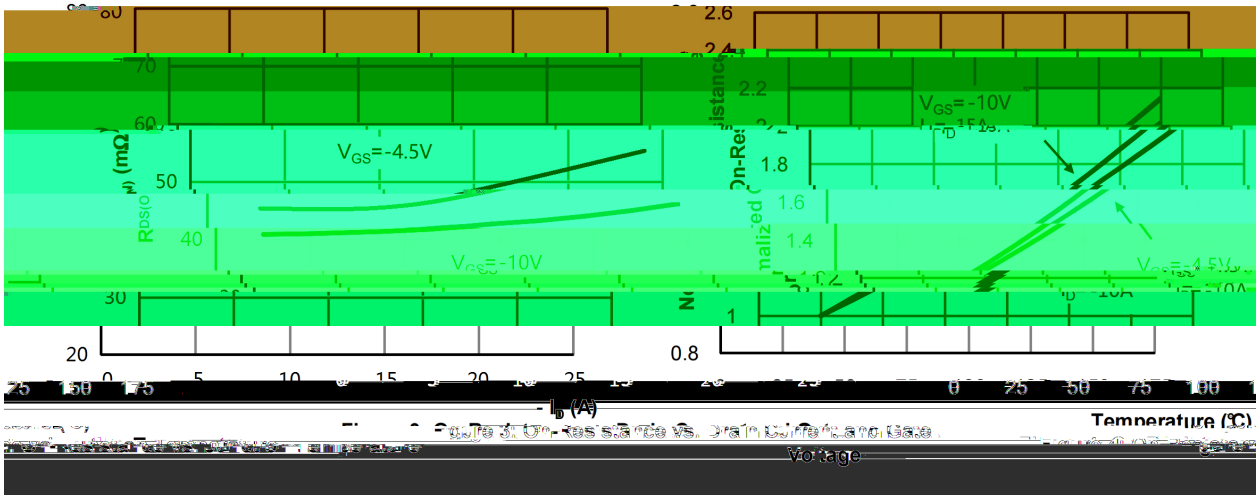
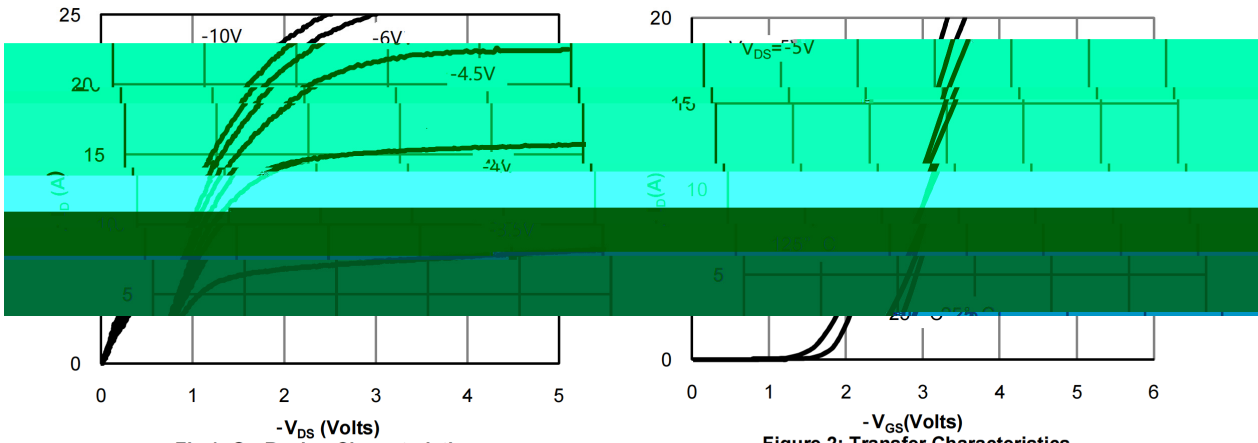
/ Electrical Characteristics(T_a=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =-250μA V _{GS} =0V	-100	-120		V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-100V V _{GS} =0V			-1	uA
Gate-Body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} = ±20V			100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =-250μA	-1	-1.7	-2.5	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-15A		42	50	m
		V _{GS} =-4.5V, I _D =-10A		45	55	
Diode Forward Voltage	V _{SD}	I _S =-1A, V _{GS} =0V			-1.2	V
Input Capacitance	C _{iSS}	V _{DS} =-15V V _{GS} =0V f=1.0MHz		6200		pF
Output Capacitance	C _{oSS}			1350		
Reverse Transfer Capacitance	C _{rSS}			630		
Gate resistance	R _g	V _{GS} =0V V _{DS} =0V f=1MHz		2.5		
Total Gate Charge	Q _{g(10V)}	V _{GS} =-10V, V _{DS} =-50V, I _D =-5A		5.9		nC
Total Gate Charge	Q _{g(4.5V)}			2.7		
Gate Source Charge	Q _{gs}			1.2		
Gate Drain Charge	Q _{gd}			1.2		

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=-10V$ $V_{DS}=-50V$ $R_L=10$ $R_{GEN}=3$		6		ns
Turn-On Rise Time	t_r			2.4		
Turn-Off Delay Time	$t_{d(off)}$			19		
Turn-Off Fall Time	t_f			2.6		

/ Electrical Characteristic Curve



/ Electrical Characteristic Curve

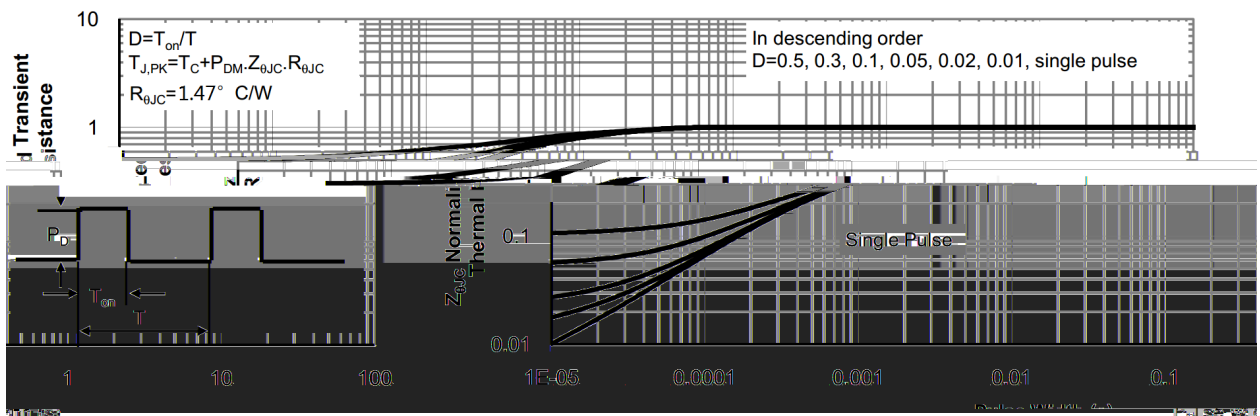
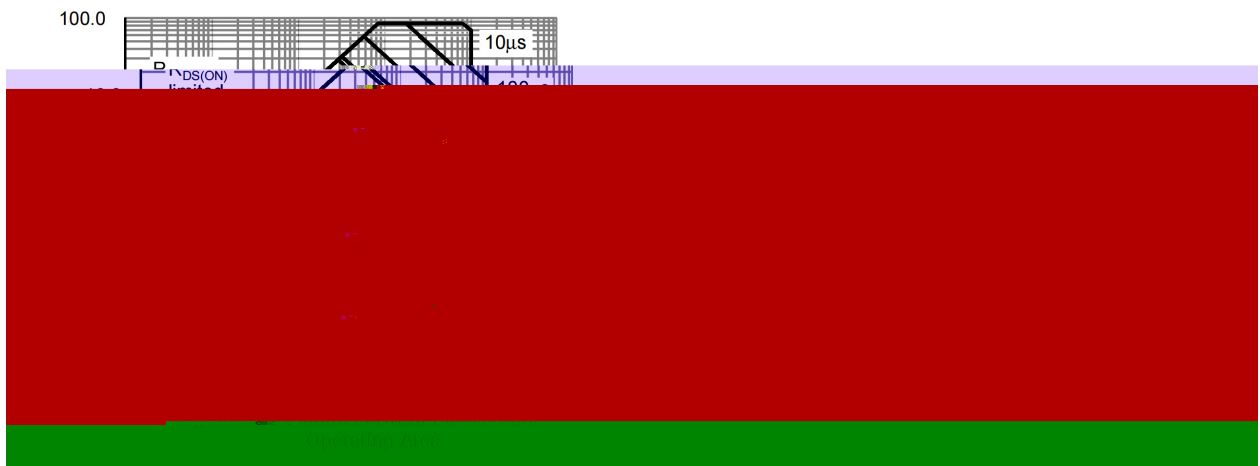
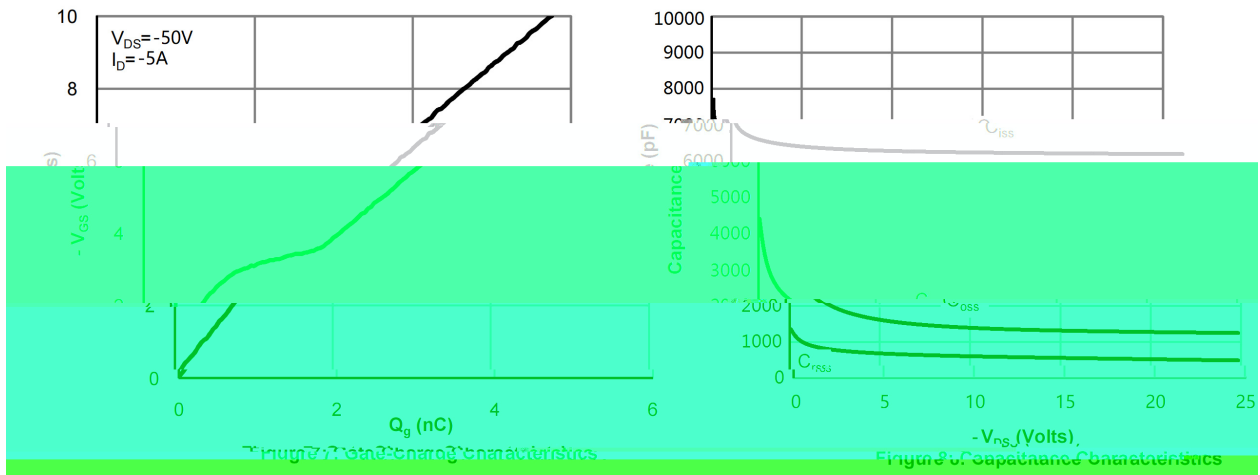
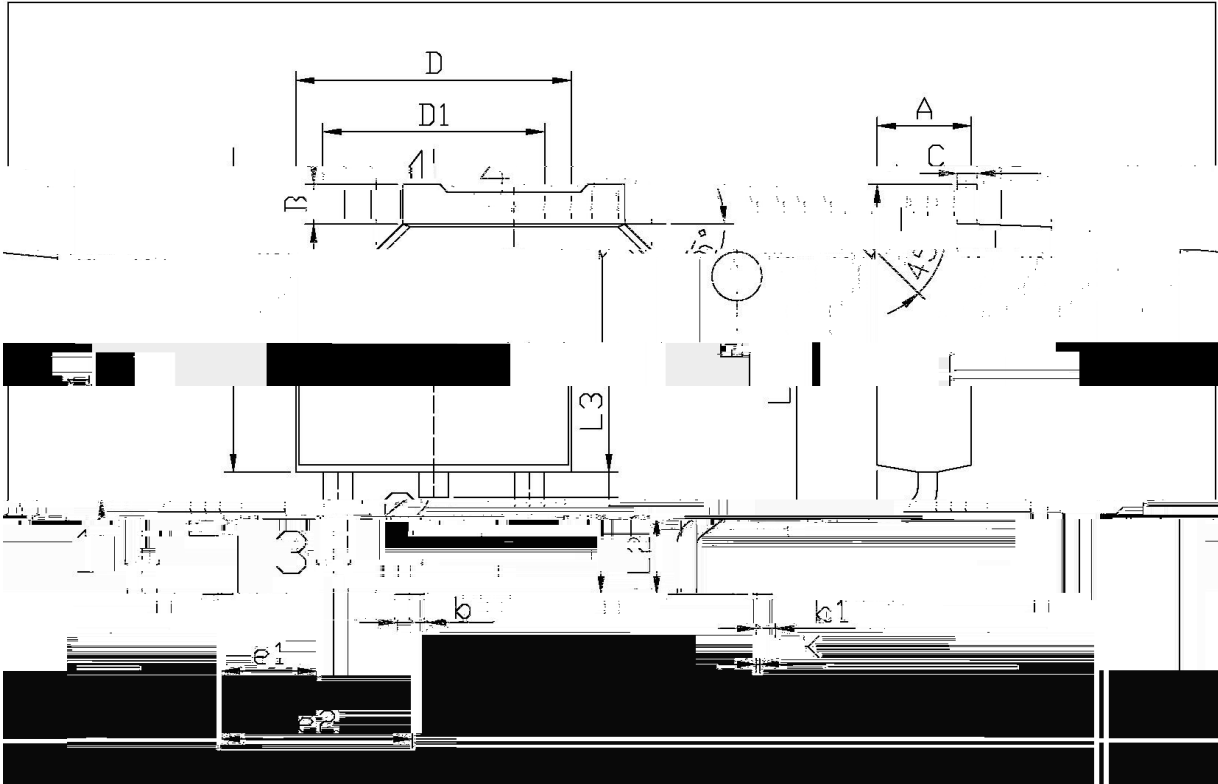


Figure 10: Normalized Maximum T_i

/ Package Dimensions



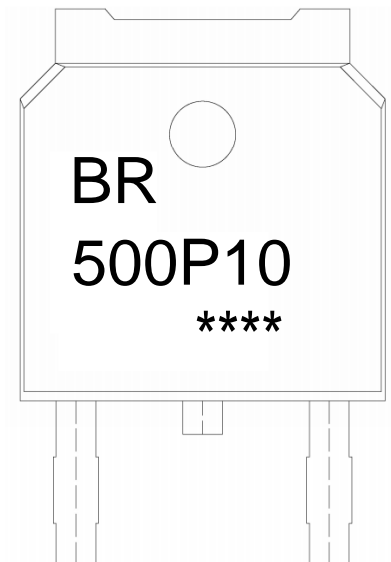
单位: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min.	Max.		Min.	Max.
E	5.95	6.25	A	2.20	2.40
e1	2.24	2.34	B	0.95	1.25
F	4.73	5.73	b	0.70	0.80
G	9.85	10.35	51	0.45	0.55
H	20.45	21.55	12	1.70	2.00
J	0.60	0.90	D	6.45	6.75
K	0.60	0.70	J1	0.10	0.50

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T0-25

/ Marking Instructions



Note:

BR: Company Code

500P10: Product Type

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

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