

BRC5030P04SXC

Rev.B Aug.-2025

/ Descriptions

PDFN5x6-Clip P

P-Channel MOSFET in a PDFN5x6-Clip Plastic Package.

/ Features

$V_{DS}(V)=-40V$ $I_D=-150A$

$R_{DS(ON)}@-10V<3m\Omega$ (TYP. 2.5m Ω)

$R_{DS(ON)}@-4.5V<4.5m\Omega$ (TYP. 3.6m Ω)

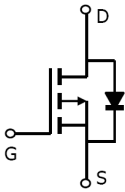
- HF Product.

/ Applications

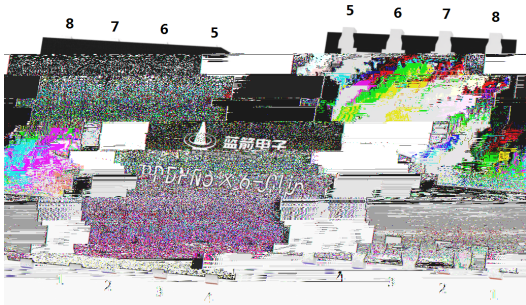
DC - DC

Motor drivers, DC - DC Converter.

/ Equivalent Circuit



/ Pinning



PIN1、2、3: S PIN4: G PIN5、6、7、8: D

/ Marking

See Marking Instructions.

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DATA SHEET

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-40	V
Drain Current – Continuous ^①	$I_D(T_c=25^\circ\text{C})$	-150	A
	$I_D(T_c=100^\circ\text{C})$	-94	A
Drain Current – Pulsed ^{①②}	I_{DM}	-360	A
Gate-Source Voltage	V_{GS}	± 20	V
Power Dissipation ^①	$P_D(T_c=25^\circ\text{C})$	110	W
Single Pulse Avalanche Energy(L=1mH)	E_{AS}	760	mJ
Junction and Storage Temperature Range	T_j, T_{stg}	-55 to 150	
Thermal resistance, junction - ambient ^①	R_{JA}	55	/ W
Thermal resistance, junction - case ^①	R_{JC}	1.14	

Notes:

* Surface Mounted on 1 in² pad area, t ≤ 10 sec

** Pulse width ≤ 300 μs, duty cycle ≤ 2 %

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=-250\mu\text{A}$ $V_{GS}=0\text{V}$	-40			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-32\text{V}$ $V_{GS}=0\text{V}$			-1	uA
Gate-Body leakage current	I_{GSS}	$V_{DS}=0\text{V}$, $V_{GS}=\pm 20\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$, $I_D=-250\mu\text{A}$	-1		-2	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-10\text{V}$, $I_D=-30\text{A}$		2.5	3.0	m
		$V_{GS}=-4.5\text{V}$, $I_D=-20\text{A}$		3.6	4.5	
Diode Forward Voltage	V_{SD}	$I_S=-30\text{A}$, $V_{GS}=0\text{V}$			-1.3	V
Reverse Recovery Time	t_{rr}	$I_{DS}=-30\text{A}$, $V_{GS}=0\text{V}$ $di_{SD}/dt=100\text{ A}/\mu\text{s}$		31		nS
Reverse Recovery Charge	Q_{rr}			20		nC
Input Capacitance	C_{iss}	$V_{DS}=-20\text{V}$ $V_{GS}=0\text{V}$ $f=1.0\text{MHz}$		15094		pF
Output Capacitance	C_{oss}			1018		
Reverse Transfer Capacitance	C_{rss}			224		

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Total Gate Charge	Q_g	$V_{GS}=-10V, \quad V_{DS}=-20V,$ $I_D=-20A$		249		nC
Gate Source Charge	Q_{gs}			53		
Gate Drain Charge	Q_{gd}			26		
Turn-On Delay Time	$t_{d(on)}$	$V_{GEN} = -10V \quad V_{DS} = -20V$ $R_L = 0.66 \quad R_G = 3.9$ $I_{DS} = -20A$		15		ns
Turn-On Rise Time	t_r			75		
Turn-Off Delay Time	$t_{d(off)}$			324		
Turn-Off Fall Time	t_f			98		

/ Electrical Characteristic Curve

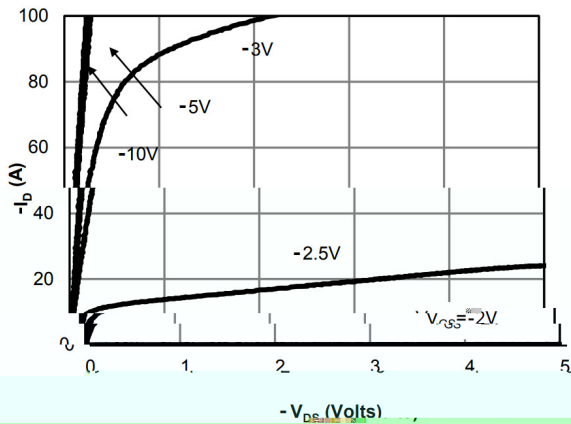


Figure 1: On-Region Characteristics

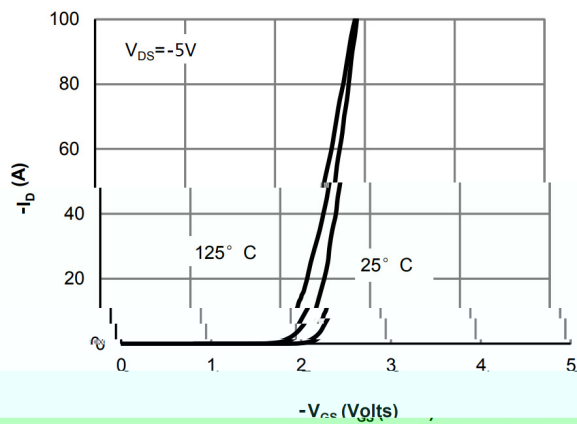


Figure 2: Transfer Characteristics

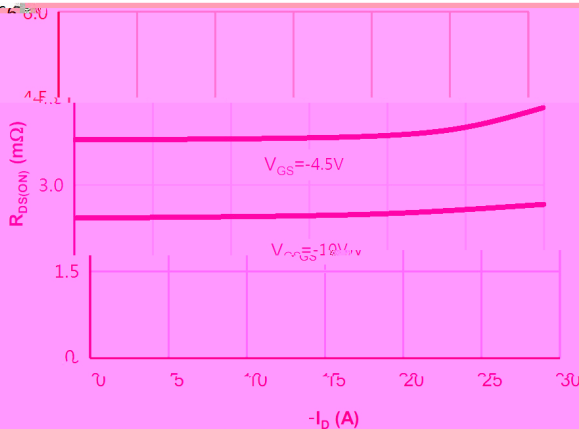


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

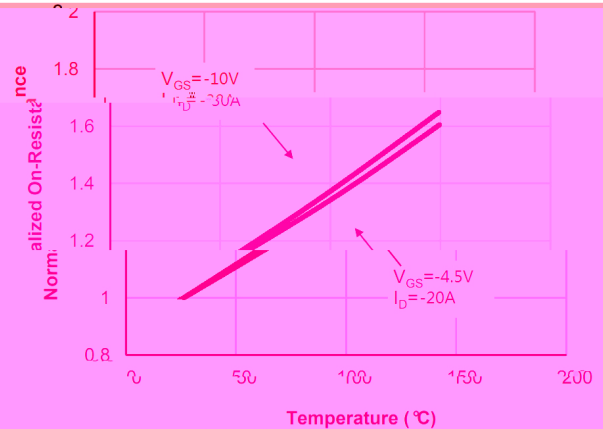


Figure 4: On-Resistance vs. Junction Temperature

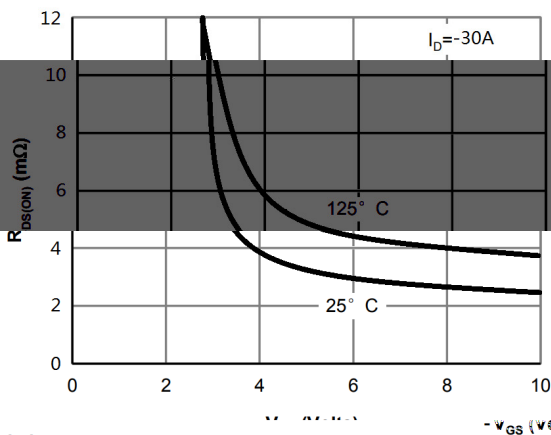


Figure 5: On-Resistance vs. Gate-Source Voltage

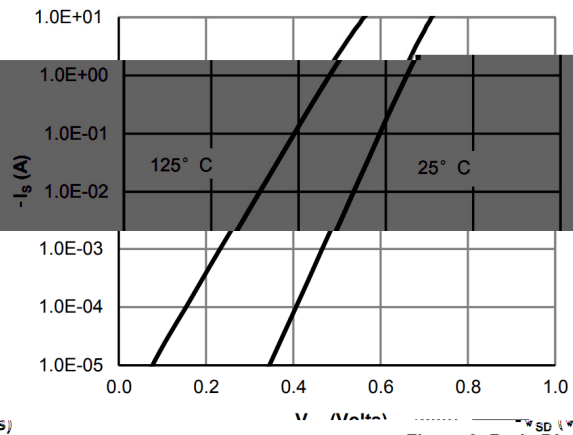


Figure 6: Body-Diode Characteristics

/ Electrical Characteristic Curve

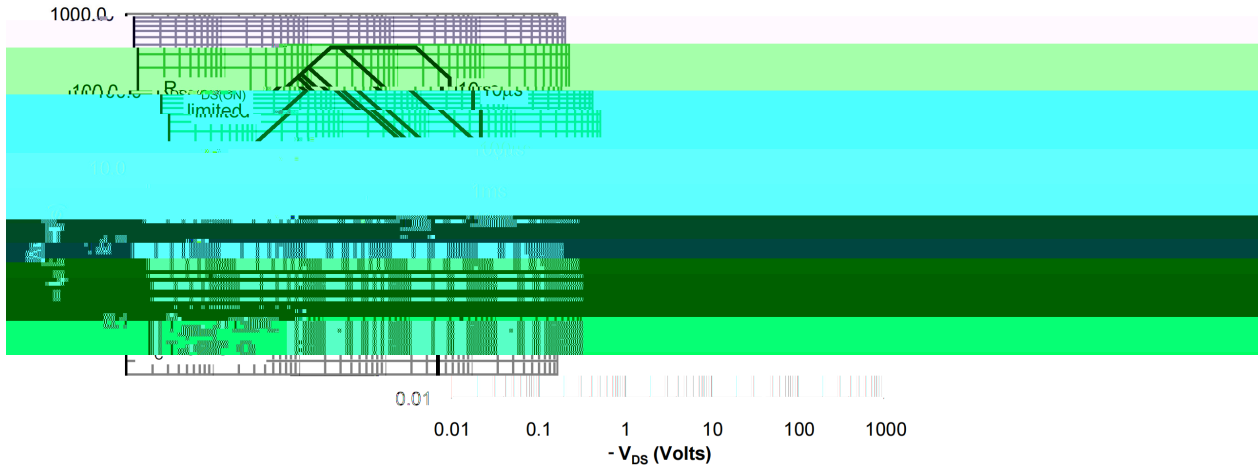
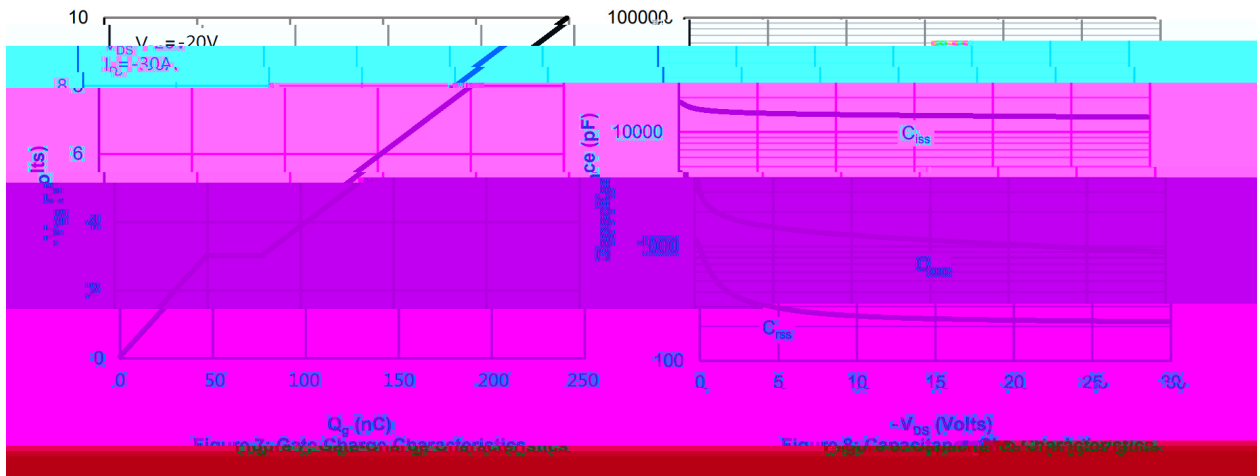
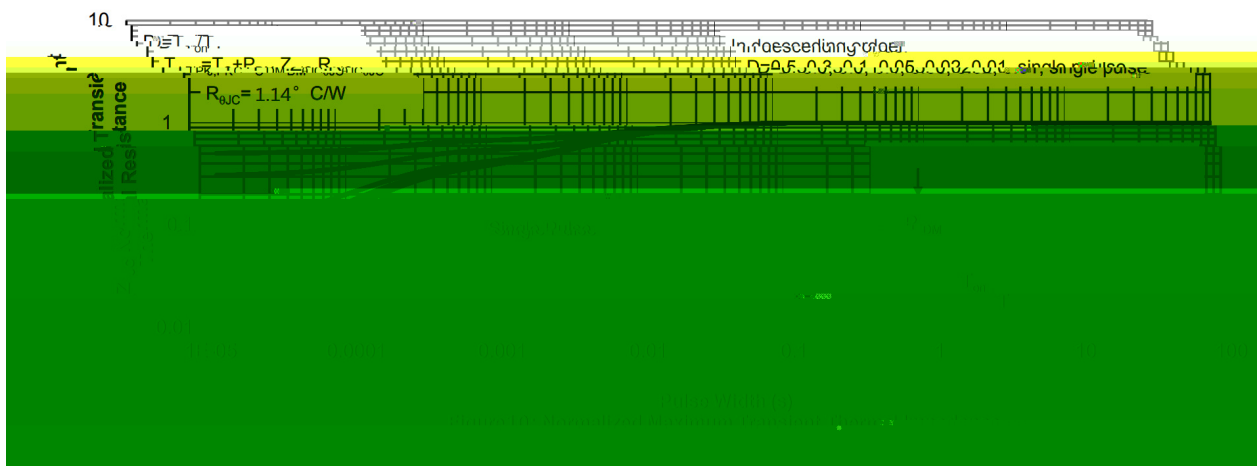
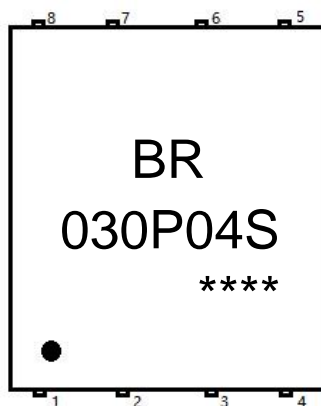


Figure 9: Maximum Forward Biased Safe Operating Area



/ Marking Instructions



BR

030P04S

Note

BR

Company Code

030P04S

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	Units					Dimension (unit mm ³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
PDFN5x6-Clip	5,000	2	10,000	6	60,000	13"x12	360x360x50	380x335x366