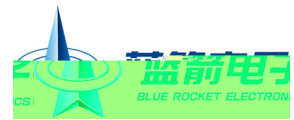


BRCS035N06SHBD

Rev.A May.-2024



DATA SHEET

/ Descriptions

TO-263 N

N-CHANNEL MOSFET in a TO-263 Plastic Package.

/ Features

$V_{DS}=60V$ $I_D=162A$

$R_{DS(on)}@10V \leq 3.5m\Omega$ (Type. $3.3m\Omega$)

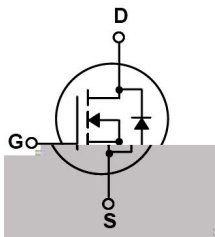
HF Product.

/ Applications

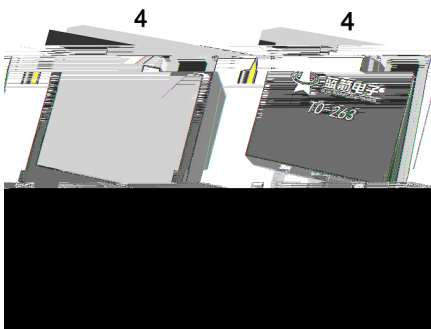
BMS

High frequency switching and synchronous rectification, BMS, Motor.

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 4 D PIN 3 S

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings($T_a=25^\circ\text{C}$)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V _{DSS}	60	V
Drain Current		I _D (T _c =25℃)	162	A
Pulsed Drain Current		I _{DM}	466	A
Gate-Source Voltage		V _{GS}	±20	V
Single Pulsed Avalanche Energy(L=0.5mH)		E _{AS}	820	mJ
Avalanche Current		I _{AS}	40.5	A
Total Power Dissipation		P _D (T _c =25℃)	170	W
Junction and Storage Temperature Range		T _J ,T _{STG}	-55 to 150	
Thermal Resistance-Junction to Ambient	t≤10s	R _{θJA}	23	/W
	Steady-State		75	
Thermal Resistance-Junction to Case	Steady-State	R _{θJC}	0.74	

/ Electrical Characteristics($T_a=25^\circ\text{C}$)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DS}	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	60	70		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60\text{V}, V_{GS}=0\text{V}$			1.0	μA
Gate-Body leakage current	I_{GSS}	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	2.0		4.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=20\text{A}$		3.3	3.5	$\text{m}\Omega$
Diode Forward Voltage	V_{SD}	$I_S=1\text{A}, V_{GS}=0\text{V}$			1.2	V
Input Capacitance	C_{iss}	$V_{DS}=25\text{V}, V_{GS}=0\text{V}, f=1.0\text{MHz}$		4400		pF
Output Capacitance	C_{oss}			1400		
Reverse Transfer Capacitance	C_{rss}			73		
Gate resistance	R_g	$V_{GS}=0\text{V}, V_{DS}=0\text{V}, f=1\text{MHz}$		1.1		Ω
Total Gate Charge	Q_g	$V_{GS}=10\text{V}, V_{DS}=30\text{V}, I_D=20\text{A}$		42		nC
Gate Source Charge	Q_{gs}			14		
Gate Drain Charge	Q_{gd}			11		

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	t _{d(on)}	V _{GS} =10V V _{DS} =30V R _L =1.5 Ω R _{GEN} =3 Ω		13		ns
Turn-On Rise Time	t _r			4		
Turn-Off Delay Time	t _{d(off)}			47		
Turn-Off Fall Time	t _f			6.5		

/ Electrical Characteristic Curve

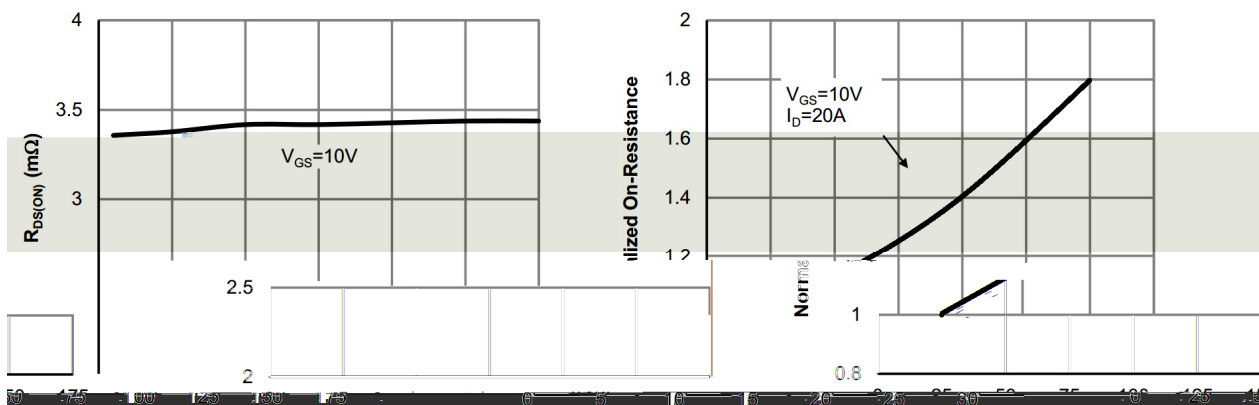
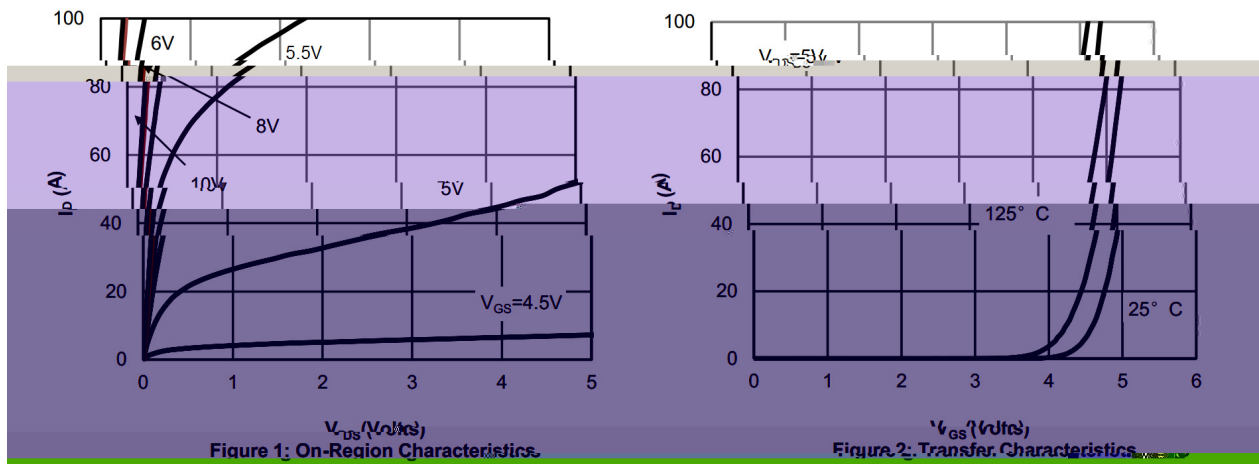


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

Figure 4: On-Resistance vs. Junction Temperature

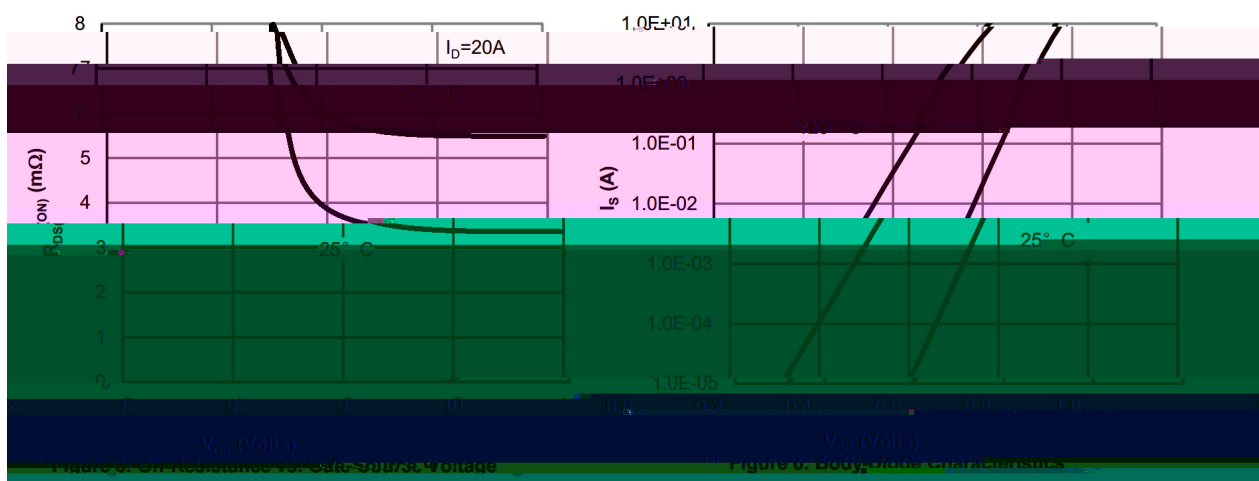


Figure 5: On-Resistance vs. Drain-Source Voltage

Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

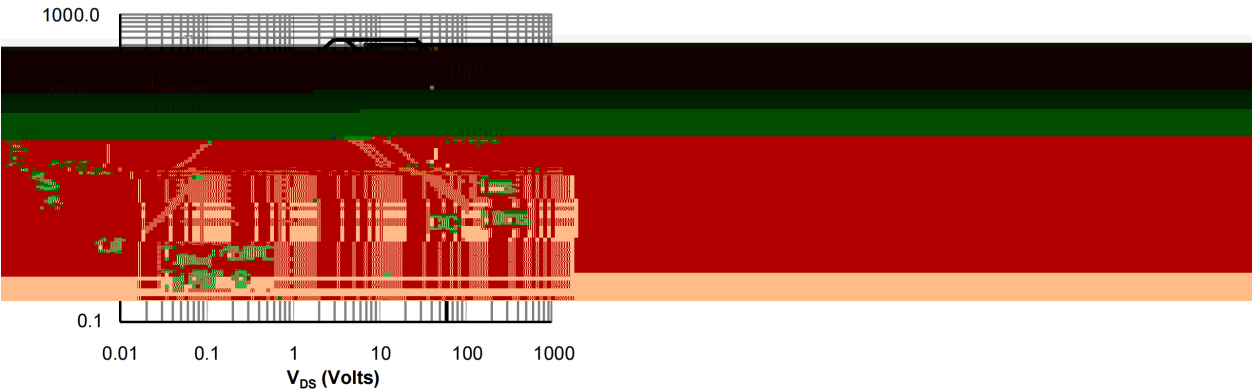
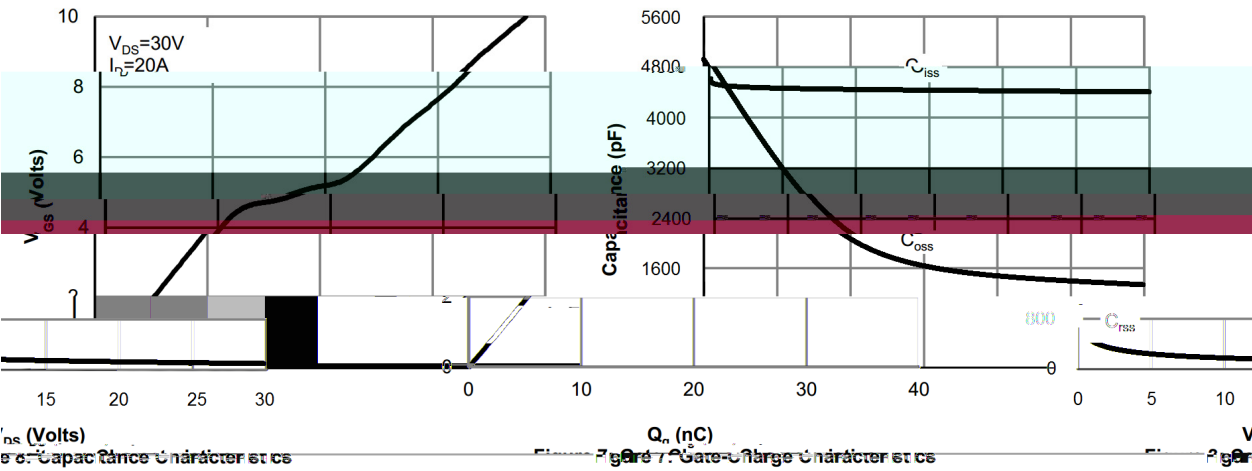


Figure 9: Maximum Forward Biased Safe Operating Area

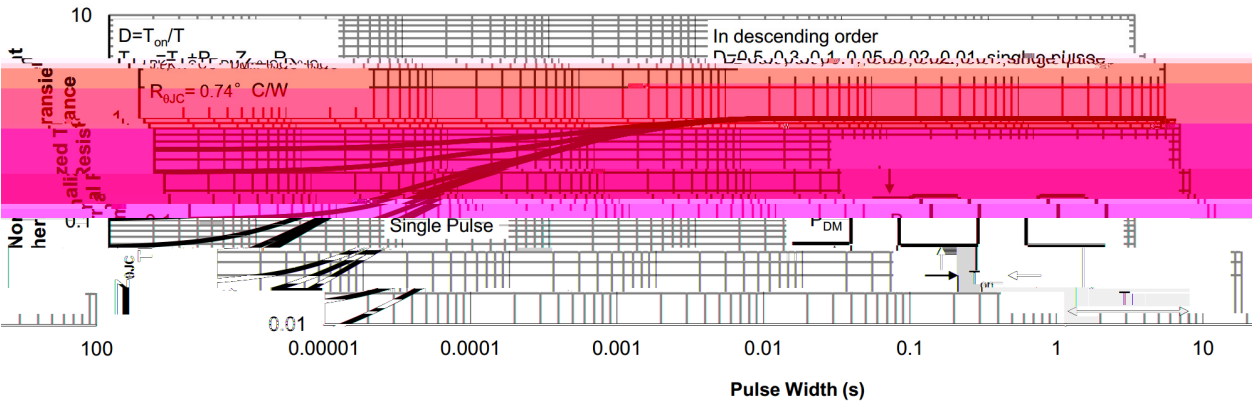


Figure 10: Normalized Maximum Transient Thermal Impedance

/ Marking Instructions



BR

035N06SH

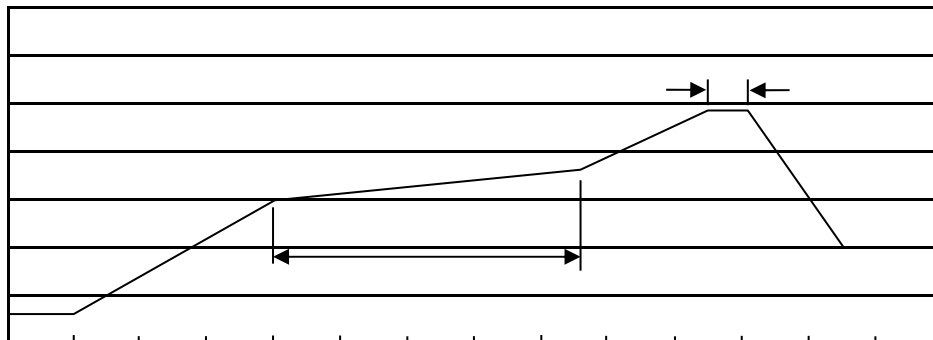
Note:

BR: Company Code

035N06SH: 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
TO-263	800	1	800	6	4,800	13" ×24	360×360×50	380×335×366

/ TUBE

Package Type	Units					Dimension (unit mm ³)		
	Units/Tube /	Tubes/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Tube	Inner Box	Outer Box
TO-263	50	20	1,000	5	5,000	532×33×7.0	555×164×50	575×290×180

/ Notices