/ Descriptions

SG I Q8Ö90F0Is Ṃ Ł Q ڜ ʃ ѽ Ẕ ٦
N-Channel MOSFET in a PDFN5 × 6–Clip Plastic Package.

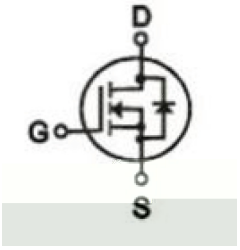
/ Features

V_{DS}(V)=150V I_D=54A
$R_{DS(ON)}$@10V<12.5mΩ(TYP. 10.5mΩ)
$R_{DS(ON)}$@6V<18.5mΩ(TYP. 16.5mΩ)
ṇ ғ β HF Product.

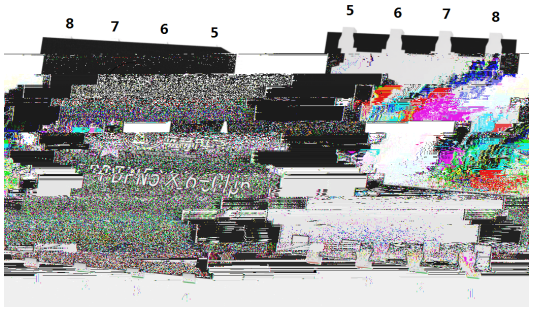
/ Applications

Ɔ ɨ Ʊ ʰ ı GF 0 GF ڃ Ѿ ʰ
Motor drivers, DC - DC Converter.

/ Equivalent Circuit



/ Pinning



PIN1 2 3 S PIN4 G PIN5 6 7 8 D

/ Marking

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See Marking Instructions.

/ Absolute Maximum Ratings(T_a=25)

v Ѽ Parameter	ч N Symbol	Ѽ Ө Rating	D Ң Unit
Drain-Source Voltage	V_{DS}	150	V
Drain Current*	I_D(T_C=25 ł)	54	A
	I_D(TC=100 ł)	38	A
Drain Current – Pulsed**	I_{DM}	216	A
Gate-Source Voltage	V_{GS}	± 20	V
Power Dissipation	P_D(T_c=25)	93	W
Diode Forward Current	I_S(T_c=25)	54	A
Single Pulse Avalanche Energy(L=1.0mH)	E_{AS}	450	mJ
Junction and Storage Temperature Range	T_j, T_{stg}	-55 to 175	ł
Thermal resistance, junction – ambient*	R θ JA	59	/ W
Thermal resistance, junction – case*	R θ JC	1.6	/ W

Note:

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

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

/ Electrical Characteristics(Ta=25)

v Ѽ Parameter	ч N Symbol	Ш ː ˀ Ţ Test Conditions	ѡ ņ Ө Min	Ɛ ʒ Ө Typ	ѡ ᶻ Ө Max	D Ң Unit
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=250uA, V_{GS}=0V	150			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=120V, V_{GS}=0V			1.0	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=250uA	2		4	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=30A		10.5	12.5	mƑ
		V_{GS}=6V, I_D=20A		16.5	18.5	
Diode Forward Voltage	V_{SD}	I_{SD} = 30 A, V_{GS} = 0 V			1.3	V
Reverse Recovery Time	t_{rr}	I_{DS} = 30 A, V_{GS} = 0 V dI_{SD}/dt = 100 A/μs		77		nS
Reverse Recovery Charge	Q_{rr}			237		nC
Input Capacitance	C_{iss}	V_{DS}=75V V_{GS}=0V f=1.0MHz		1548		pF
Output Capacitance	C_{oss}			227		
Reverse Transfer Capacitance	C_{rss}			14		

/ Electrical Characteristics(Ta=25)

v Ѽ Parameter	٩ N Symbol	╨ ;ˆ ţ Test Conditions	ѽ ņ Ө Min	Ɛ ʒ Ө Typ	ѽ ᶻ Ө Max	ɒ Ꮒ Unit
Total Gate Charge	Q_g	V_{GS}=10V, V_{DS}=75V, I_D=30A		23		nC
Gate Source Charge	Q_{gs}			10		
Gate Drain Charge	Q_{gd}			4		
Turn-On Delay Time	$t_{d(on)}$	V_{GEN}=10V, V_{DS}=75V, R_L=2.5 , R_G=3.9 I_{DS}=30A		13		ns
Turn-On Rise Time	t_r			21		
Turn-Off Delay Time	$t_{d(off)}$			27		
Turn-Off Fall Time	t_f			15		

/ Electrical Characteristic Curve

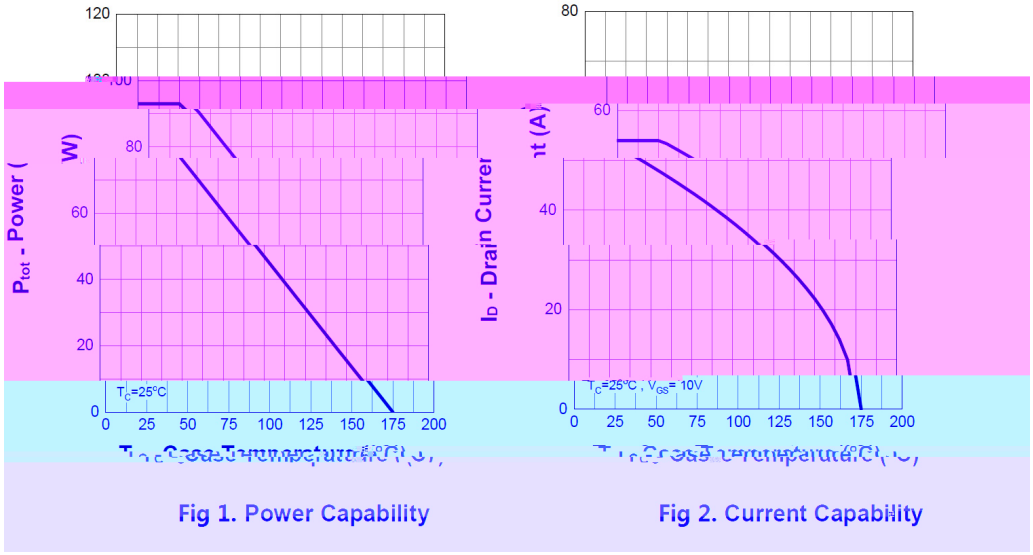
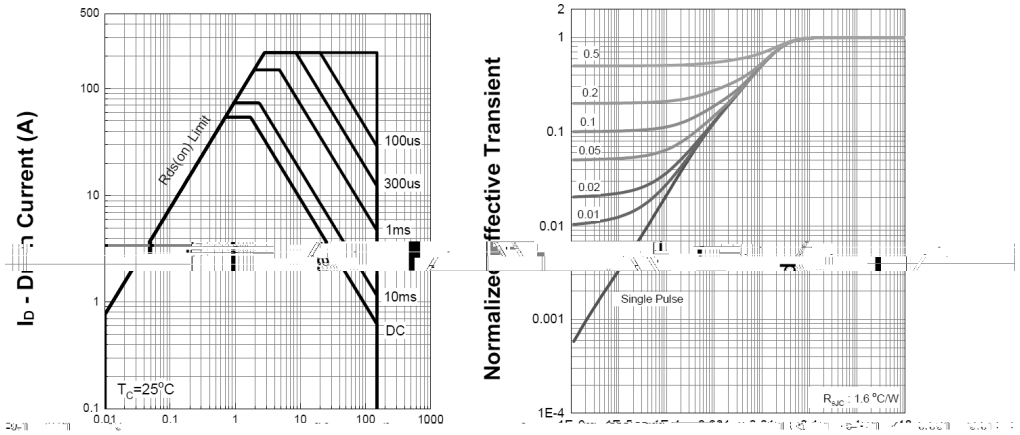


Fig 1. Power Capability

Fig 2. Current Capability



uration (sec)

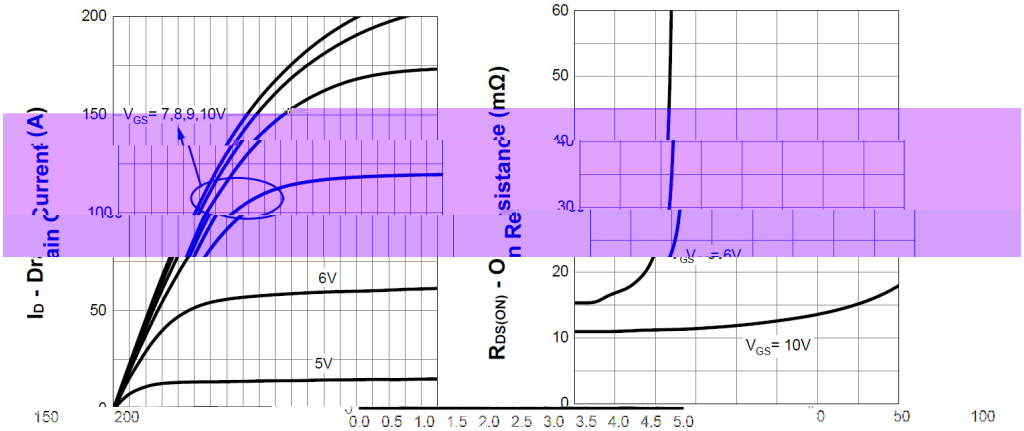
V_{DS} - Drain-Source Voltage (V)

Square Wave Pulse Du

nal Impedance

Fig 3. Safe Operating Area

Fig 4. Transient Therm



ent (A)

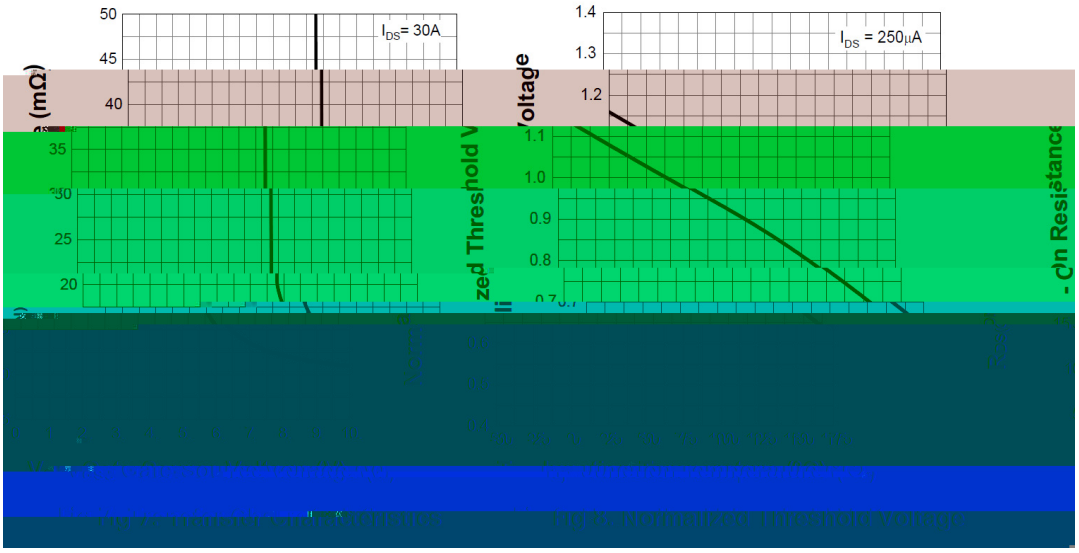
istance

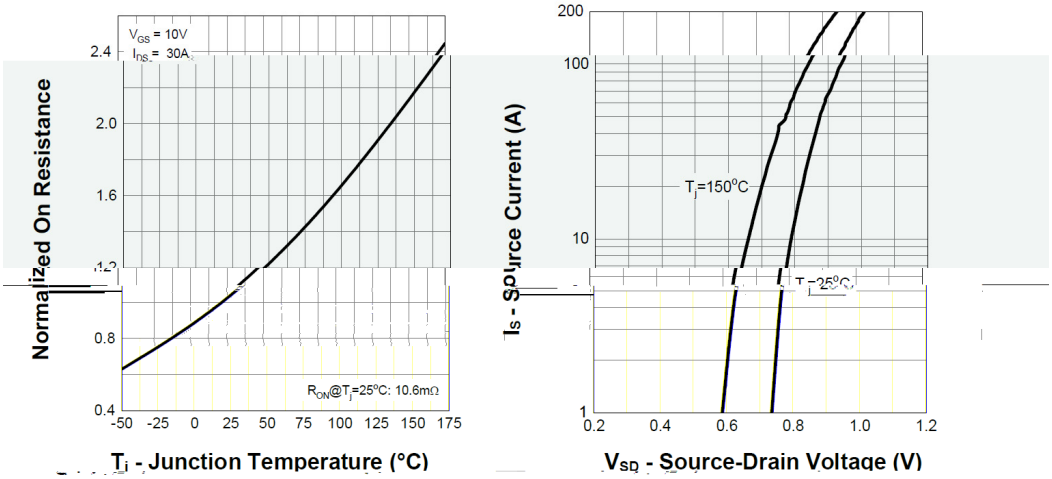
Fig 5. Output Characteristics

I_D - Drain Curr

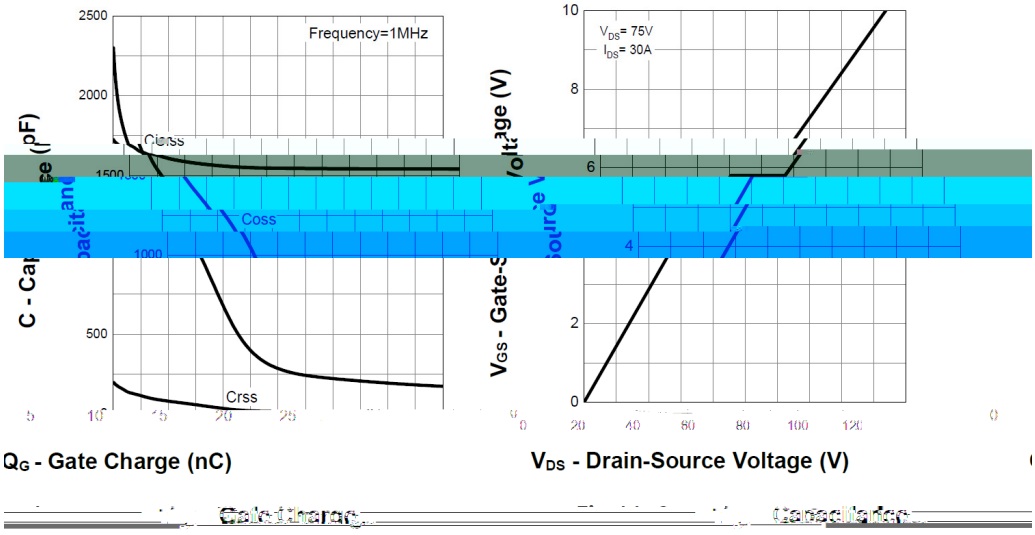
Fig 6. On Res

/ Electrical Characteristic Curve

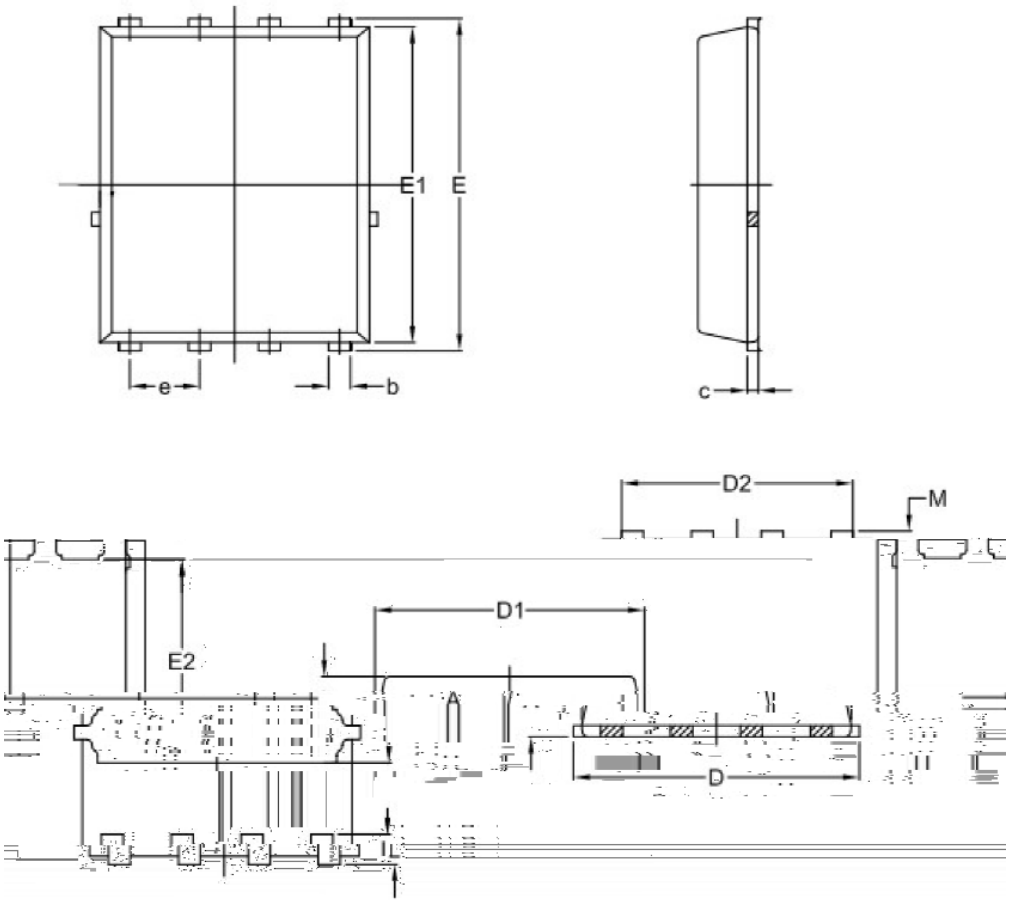




ard Current **Fig 9. Normalized On Resistance** **Fig 10. Diode Forw**

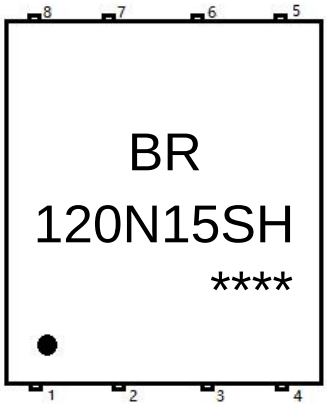


/ Package Dimensions



SYMBOL	Dimension in mm	
	MIN.	MAX.
A	0.9	1.2
b	0.3	0.51
c	0.11	0.35
D	4.7	5.35
D1	4.7	5.35
D2	3.7	4.4
1.37	e	1.17
6.25	E	5.75
6	E1	5.6
3.9	E2	3.18
0.71	L	0.35
0.71	M	0.35

/ Marking Instructions



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EU χ ʜʀ ʒ ᴎ ᑎ

120N15SH χ ʜʀ ȝ ᴺ ᑎ

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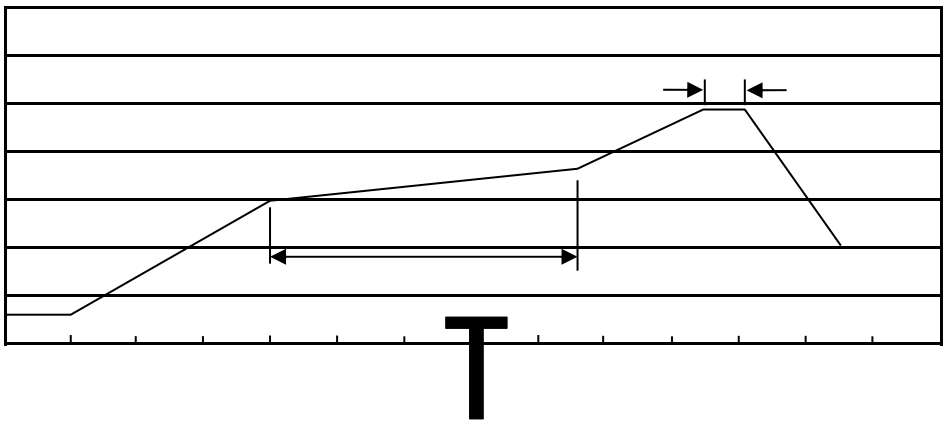
Note χ

BR χ	Company Code
120N15SH χ	Product Type Code
****:	Lot No. Code, code change with Lot No.

( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)



ب ˝ χ

1 Ĺ ♬ □ ẙ 150 Ḱ 180 ɬ ı `H ڑ 60 Ḱ 90sec;

2 Š Ë □ ẙ 245 ° 5 ɬ ı `H ڑ `Y ʎ ₦ 5 ° 0.5sec;

3 ì ˙ ϒ ˛ ɔ ♨ ẙ ₦ 2 Ḱ 10 ɬ /sec.

Note:

1.Preheating:150~180 ɬ , Time:60~90sec.

2.Peak Temp.:245 ° 5 ɬ , Duration:5 ° 0.5sec.

3. Cooling Speed: 2~10 ɬ /sec.

/ Resistance to Soldering Heat Test Conditions

□ ẙ χ 260 ° 5 ɬ `H ڑ χ 10 ° 1 sec. Temp.:260±5 Time:10±1 sec

/ Packaging SPEC.

ɔ ` ɣ Ŀ / REEL

Package Type Ṃ Ŀ ė Ǻ	Units					Dimension		(unit mm³)
	Units/Reel ᴱ 2 ɔ `	Reels/Inner Box ɔ ` 2 ¨	Units/Inner Box ᴱ 2 ¨	Inner Boxes/Outer Box ¨ 2 ϒ	Units/Outer Box ᴱ 2 ϒ	Reel	Inner Box ¨	Outer Box ϒ
PDFN5×6-Clip	5000	2	10000	6	60000	13''×12	360×360×50	380×335×366

/ Notices

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