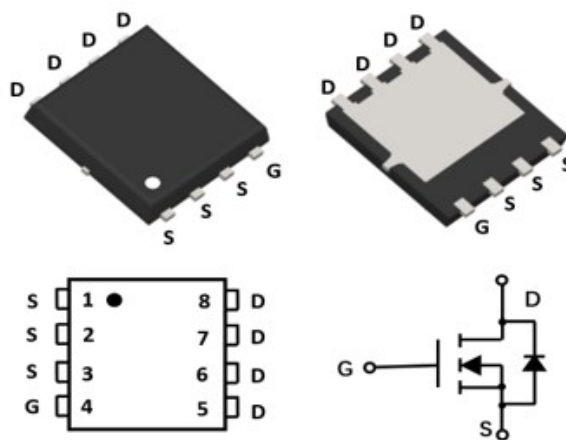


N-CHANNEL Power MOSFET

FEATURES

- V_{DS} : 40V Max., I_D : 120A Max.
- $R_{DS(ON)}$: 2.6m Ω (max.)@ $V_{GS}=10V, I_D=50A$
- $R_{DS(ON)}$: 3.5m Ω (max.)@ $V_{GS}=4.5V, I_D=50A$
- High density cell design for ultra low on-resistance
- Fully characterized avalanche voltage and current

PDFN 5X6



MECHANICAL DATA

- Case: PDFN5x6
- Case material: Molded Plastic. UL flammability 94V-0
- Weight: 0.33grams(approximate)
- Marking: G120N04

MAXIMUM RATINGS ($T_A=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	40	V
Gate-source voltage	V_{GS}	± 20	V
Continuous drain current	I_D	120	A
Pulsed drain current (Note 1)	I_{DM}	360	A
Power dissipation	P_D	110	W
Thermal resistance from junction to ambient	$R_{\theta JA}$	20	$^{\circ}C/W$
Operating junction and storage temperature	T_J, T_{STG}	-55~+150	$^{\circ}C$
Single Pulsed Avalanche Energy (note 1)	E_{AS}	70	mJ
Lead Temperature for Soldering Purposes (1/8" from case for 10s)	T_L	260	$^{\circ}C$

Note: 1. E_{AS} condition: $V_{DD}=20V, L=0.5mH, R_G=25\Omega$, Starting $T_J = 25^{\circ}C$

N-CHANNEL Power MOSFET
ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Off characteristics						
Drain-Source breakdown voltage	V _{(BR)DS}	40			V	V _{GS} =0V, I _D =250μA
Zero gate voltage drain current	I _{DSS}			1	uA	V _{DS} =40V, V _{GS} =0V
Gate-body leakage current	I _{GSS}			±100	nA	V _{DS} =0V, V _{GS} =±20V
On characteristics (note1)						
Gate-threshold voltage	V _{GS(th)}	1.1	1.5	2.2	V	V _{DS} =V _{GS} , I _D =250μA
Drain-source on-resistance	R _{DS(ON)}		1.8	2.6	mΩ	V _{GS} =10V, I _D =50A
			2.5	3.5		V _{GS} =4.5V, I _D = 50A
Forward transconductance	g _{FS}		10		S	V _{DS} =5V, I _D =50A
Dynamic characteristics (Guaranteed by design, not subject to production)						
Input capacitance	C _{iss}		4620		pF	V _{GS} =0V V _{DS} =20V f=1.0MHz
Output capacitance	C _{oss}		430		pF	
Reverse transfer capacitance	C _{rss}		360		pF	
Switching characteristics (Guaranteed by design, not subject to production)						
Turn-on delay time	t _{d(on)}		15		ns	V _{DD} =20V I _D =20A R _G =3 Ω V _{GS} =10V
Turn-on rise time	t _r		55		ns	
Turn-off delay time	t _{d(off)}		120		ns	
Turn-off fall time	t _f		80		ns	
Total gate charge	Q _g		100		nC	V _{DS} =10V, V _{GS} =10V, I _D =20A
Gate-source charge	Q _{gs}		16		nC	
Gate-drain charge	Q _{gd}		22		nC	
Drain-source diode characteristics						
Diode forward voltage	V _{SD}			1.2	V	I _S =15A, V _{GS} =0V
Max. forward current	I _S			20	A	
Pulsed drain-source diode forward current	I _{SM}			120	A	

Notes: 1. Pulse Test: Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.

N-CHANNEL Power MOSFET
TYPICAL CHARACTERISTICS

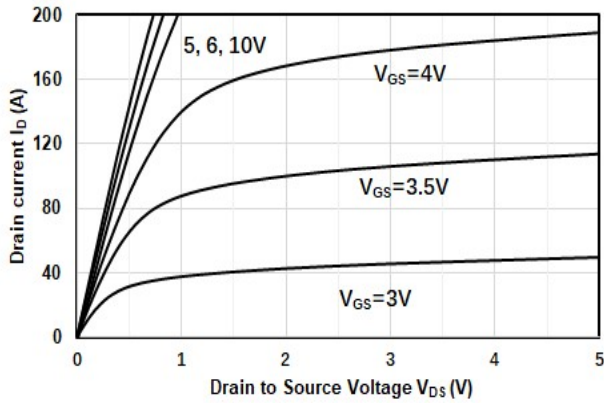


Figure1. Output Characteristics

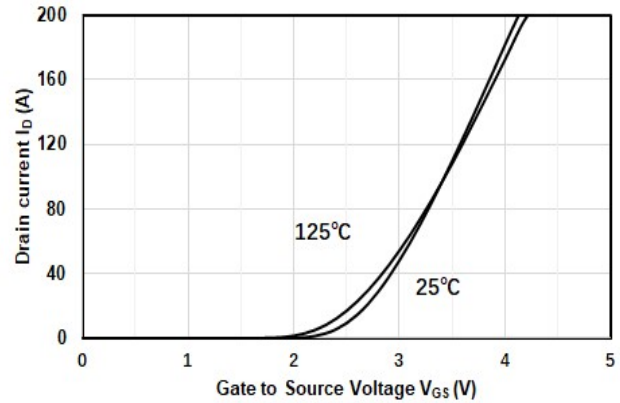


Figure2. Transfer Characteristics

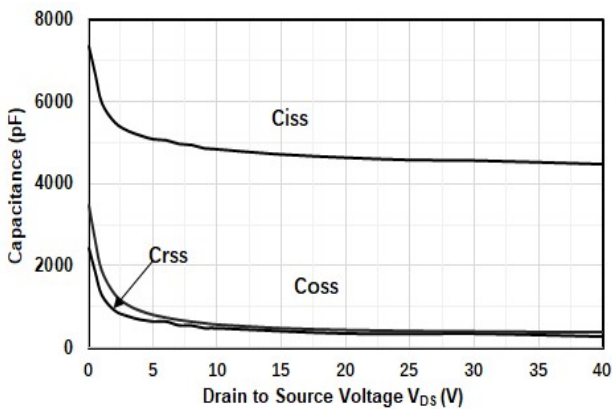


Figure3. Capacitance Characteristics

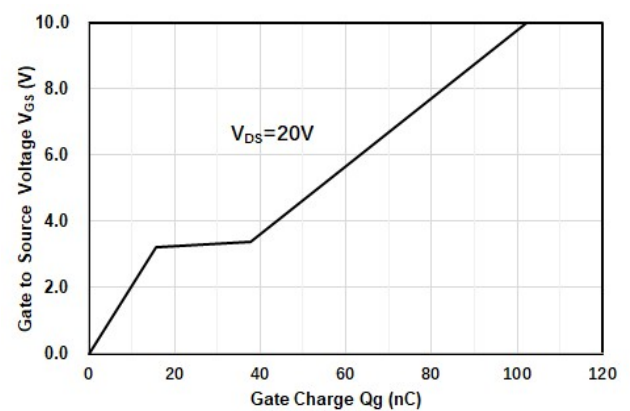


Figure4. Gate Charge

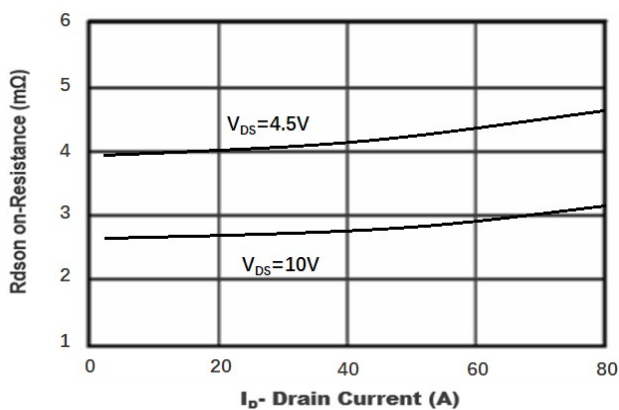


Figure5. Drain-Source on Resistance

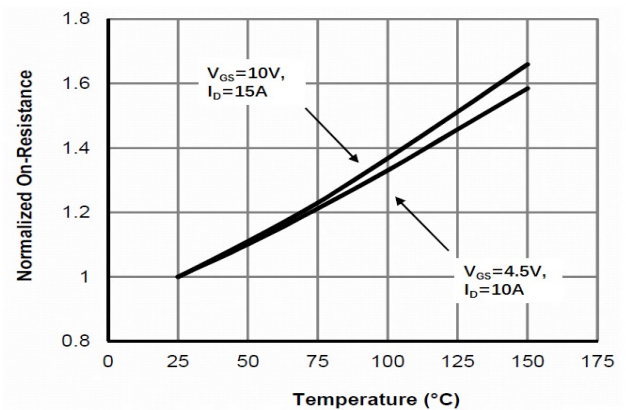
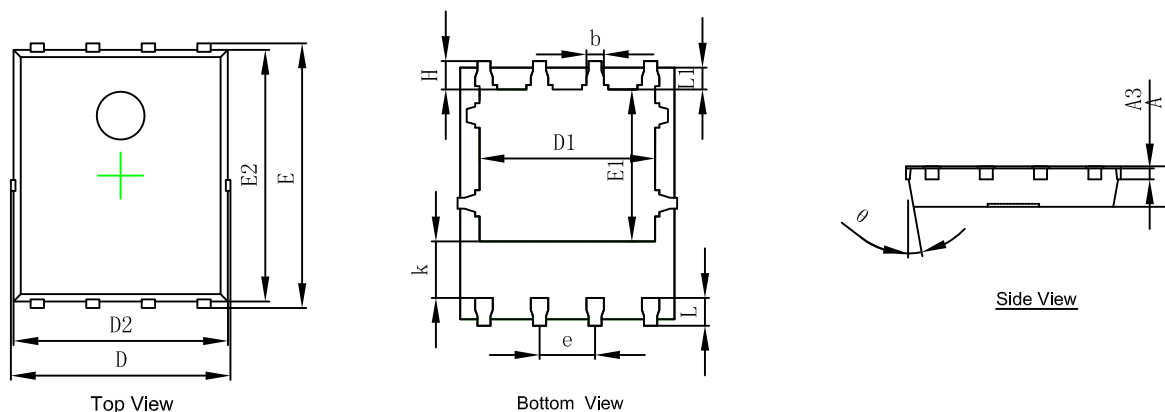
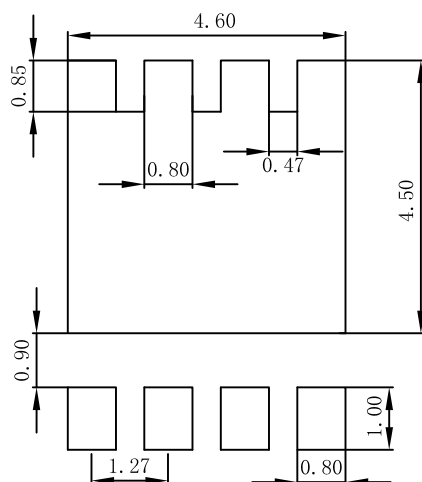


Figure6. Drain-Source on Resistance

N-CHANNEL Power MOSFET
PDFN5X6 Package information


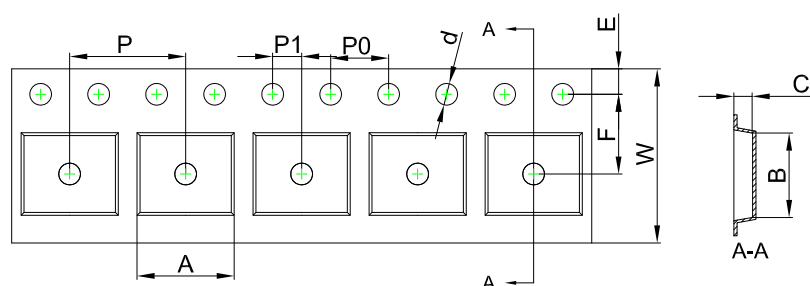
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°

PDFN 5x6 Suggested Pad Layout

Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

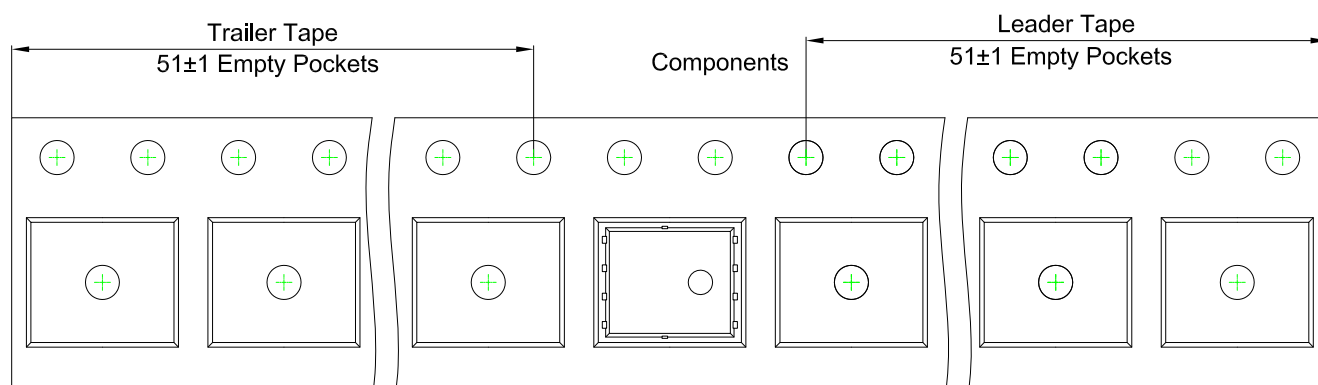
N-CHANNEL Power MOSFET

PDFN 5×6 Embossed Carrier Tape

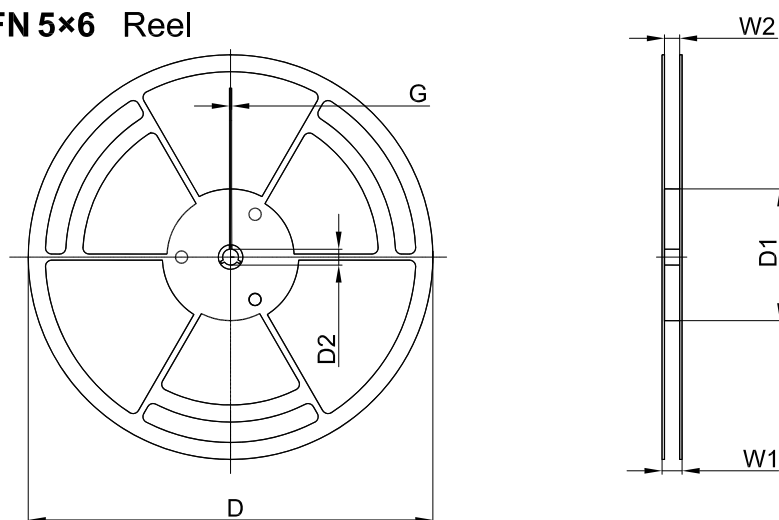


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
PDFN 5×6	6.30	5.30	1.10	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

PDFN 5×6 Tape Leader and Trailer



PDFN 5×6 Reel



Dimensions are in millimeter						
Reel Option	D	D1	D2	G	W1	W2
13"Dia	Ø330.00	100.00	13.00	1.90	17.60	12.40

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)
5,000 pcs	13 inch	5,000 pcs	340×336×29	50,000 pcs	353×346×365