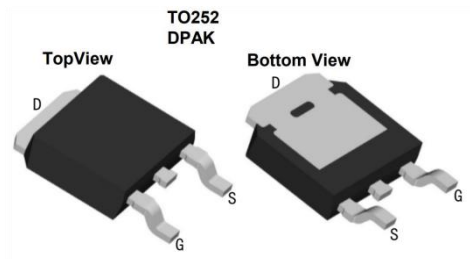




Product Summary

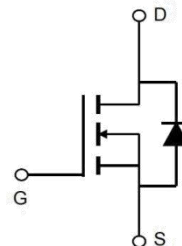
$V_{(BR)DSS}$	$R_{DS(ON)} \text{ max}$	$I_D \text{ max}$
100V	$<98\text{m}\Omega @ V_{GS}=10\text{V}$	14A
	$<150\text{m}\Omega @ V_{GS}=4.5\text{V}$	

Package & Internal Circuit



Description and Applications

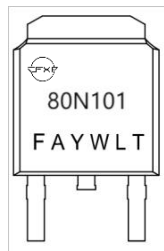
- Low Gate Charge
- 100% UIS Tested, 100% DVDS Tested
- High Power and current handing capability
- Lead free product is acquired
- DC/DC Converter
- Ideal for high-frequency switching and synchronous rectification



Ordering Information

Part Number	Package Type	Package Qty
CFD80N101	TO-252	2,500/Tape & Reel

Marking Information



Green product

CFXP-Logo
80N101--Part Number
F-Fab location
A-Assembly location
Y--Year
W--Week
LT--Lot sequence

Absolute Maximum Rating ($T_{amb}=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Units
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current - Continuous	I_D	14	A
Single Pulse Avalanche Energy	E_{AS}	12	mJ
Power Dissipation	P_D	37	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^{\circ}\text{C}$

Thermal Characteristics

Parameter	Symbol	Typ	Max	Units
Maximum Junction-to-Case	$R_{\theta JC}$		3.4	°C/W

Electrical Characteristics ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Static Parameters						
BV_{DSS}	Drain-Source Breakdown Voltage	$I_D = 250\mu\text{A}$, $V_{GS} = 0\text{V}$	100			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 100\text{V}$, $V_{GS} = 0\text{V}$			1	μA
		$T_J = 125^{\circ}\text{C}$			100	μA
I_{GSS}	Gate-Body leakage current	$V_{DS} = 0\text{V}$, $V_{GS} = \pm 20\text{V}$			± 100	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$, $I_D = 250\mu\text{A}$	1.0		2.5	V
$R_{DS(on)}$	Drain-Source on-Resistance	$V_{GS} = 10\text{V}$, $I_D = 1.5\text{A}$		80	98	m Ω
		$V_{GS} = 4.5\text{V}$, $I_D = 1\text{A}$		113	150	m Ω
g_{FS}	Forward Transconductance	$V_{DS} = 5\text{V}$, $I_D = 5\text{A}$		4.6		S
V_{SD}	Body Diode Forward Voltage	$I_S = 5\text{A}$, $V_{GS} = 0\text{V}$			1.2	V
Dynamic parameters						
C_{iss}	Input Capacitance	$V_{GS} = 0\text{V}$ $V_{DS} = 50\text{V}$ $f = 1.0\text{MHz}$		164		pF
C_{oss}	Output Capacitance			66		pF
C_{rss}	Reverse Transfer Capacitance			8		pF
R_g	Gate resistance	$f = 1.0\text{MHz}$		2.6		Ω
Switching Parameters						
Q_g	Total Gate Charge	$V_{GS} = 10\text{V}$ $V_{DS} = 50\text{V}$ $I_D = 5\text{A}$		20		nC
Q_{gs}	Gate Source Charge			3		nC
Q_{gd}	Gate Drain Charge			4		nC
$t_{D(on)}$	Turn-On Delay Time	$V_{DS} = 50\text{V}$ $V_{GS} = 10\text{V}$ $R_L = 10\Omega$ $R_G = 3\Omega$		6		ns
t_r	Turn-On Rise Time			7		ns
$t_{D(off)}$	Turn-Off Delay Time			20		ns
t_f	Turn-Off Fall Time			3		ns
t_{rr}	Body Diode Reverse Recovery Time	$I_F = 5\text{A}$ $di/dt = 100\text{ A}/\mu\text{s}$		20		ns
Q_{rr}	Body Diode Reverse Recovery Charge			30		nC

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

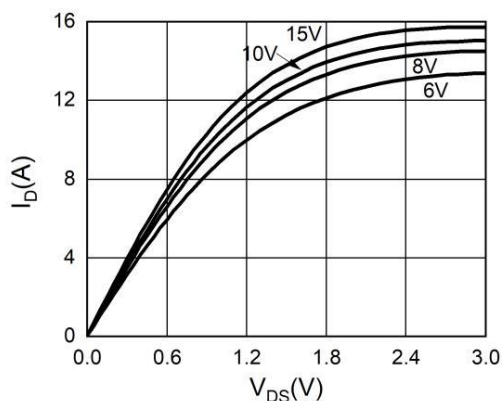


Figure 1: Output Characteristics

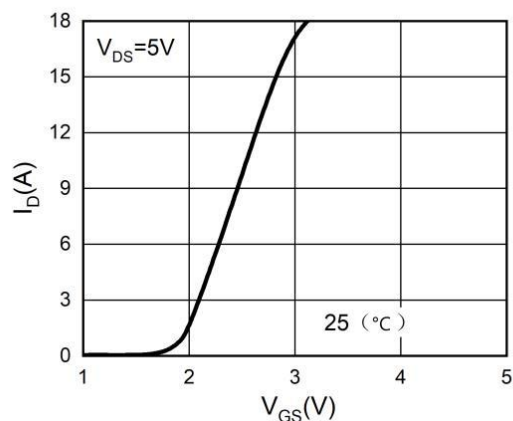


Figure 2: Transfer Characteristics

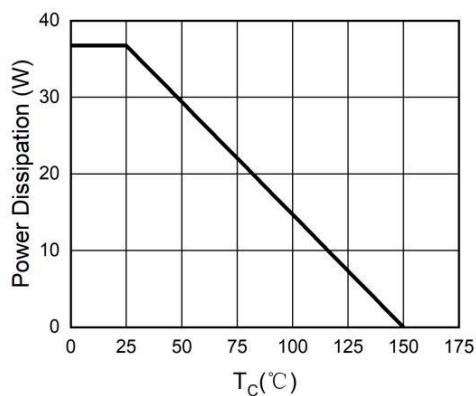


Figure 3: Power Dissipation

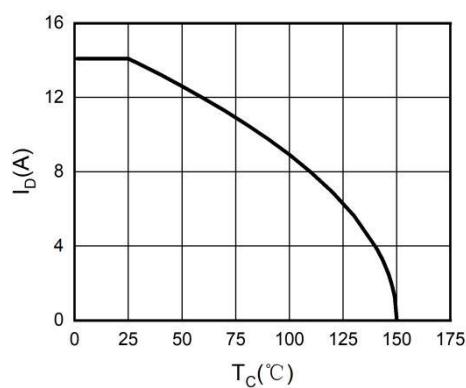


Figure 4: Drain Current

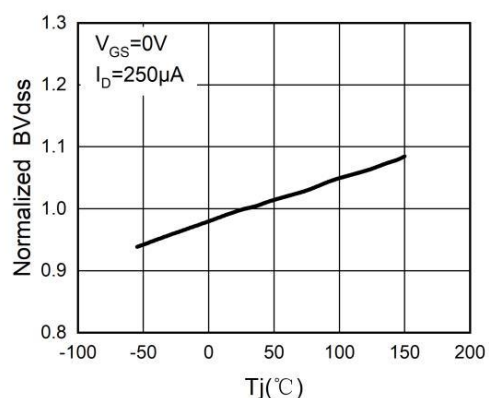


Figure 5: BV_{DS} vs Junction Temperature

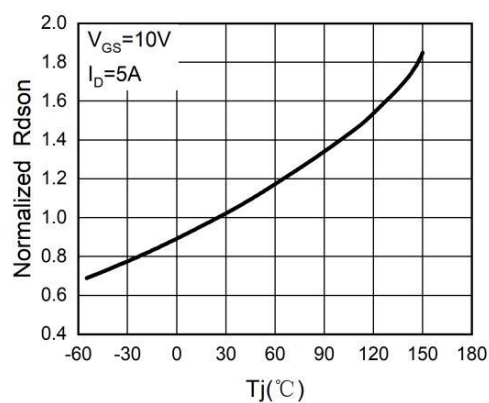


Figure 6: $R_{DS(ON)}$ vs Junction Temperature

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

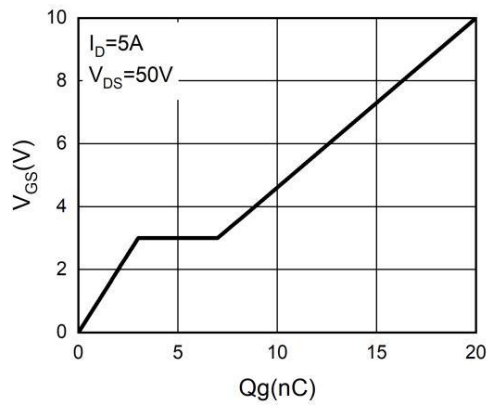


Figure 7: Gate Charge Waveforms

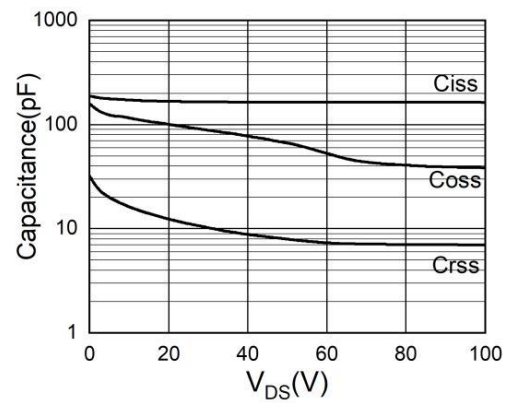


Figure 8: Capacitance

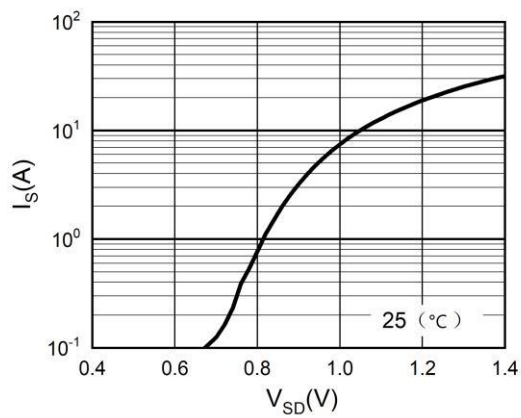


Figure 9: Body-Diode Characteristics

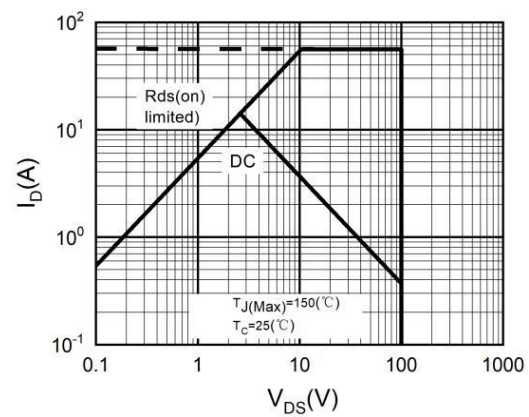
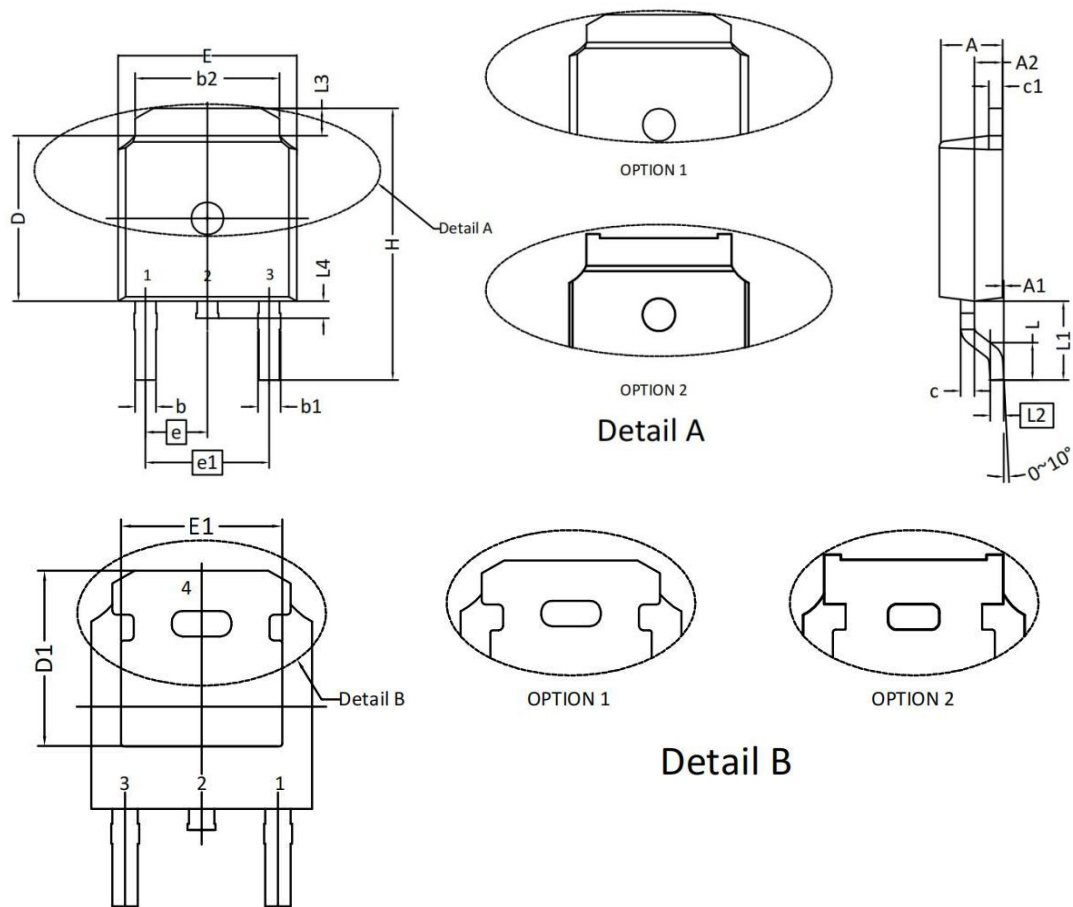


Figure 10: Maximum Safe Operating Area

TO-252 Package



SYMBOLS	DIMENSION IN MM			DIMENSION IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	2.184	2.286	2.400	0.086	0.090	0.094
A1	0.000	---	0.200	0.000	---	0.008
A2	0.889	1.041	1.170	0.035	0.041	0.046
b	0.635	0.762	0.889	0.025	0.030	0.035
b1	0.680	0.840	1.143	0.027	0.033	0.045
b2	4.953	5.340	5.500	0.195	0.210	0.217
c	0.450	0.508	0.610	0.018	0.020	0.024
c1	0.450	0.508	0.630	0.018	0.020	0.025
D	5.969	6.096	6.223	0.235	0.240	0.245
D1	5.210	5.249	5.480	0.205	0.207	0.216
E	6.350	6.604	6.800	0.250	0.260	0.268
E1	4.318	4.826	5.230	0.170	0.190	0.206
e	2.286 BSC			0.090 BSC		
e1	4.572 BSC			0.180 BSC		
H	9.398	10.033	10.500	0.370	0.395	0.413
L	1.270	1.520	2.032	0.050	0.060	0.080
L1	2.921 REF.			0.115 REF.		
L2	0.408	0.508	0.608	0.016	0.020	0.024
L3	0.889	1.016	1.270	0.035	0.040	0.050
L4	0.600	---	1.016	0.024	---	0.040

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