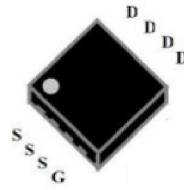
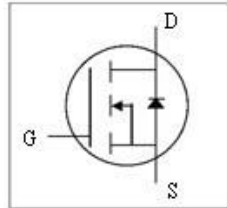


»Features

- Simple Drive Requirement
- Small Size & Low RDS(ON)
- RoHS Compliant & Halogen-Free

BVDSS	30 V
RDS(ON)typ	13 mΩ
ID	8 A

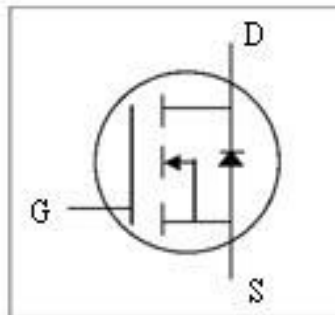


PDFN3*3

»Description

CT03NR013Q is from Coretong innovated design and silicon process technology to achieve the lowest possible on-resistance and fast switching performance. It provides the designer with an extreme efficient device for use in a wide range of power applications.

»Schematic & PIN Configuration



PDFN3x3

»Absolute Maximum Ratings@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	30	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _A =25°C	Drain Current, V _{GS} @ 10V ₃	8	A
I _D @T _A =70°C	Drain Current, V _{GS} @ 10V ₃	7	A
I _{DM}	Pulsed Drain Current ¹	40	A
P _D @T _A =25°C	Total Power Dissipation	3	W
E _{AS}	Single Pulse Avalanche Energy	5	mJ
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	150	°C

»Thermal Data

Symbol	Parameter	Value	Unit
R _{thj-c}	Maximum Thermal Resistance, Junction-case	8	°C/W
R _{thj-a}	Maximum Thermal Resistance, Junction-ambient ₃	40	°C/W

»Electrical Characteristics@T_j=25 °C(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	30	-	-	V
R _{DS(ON)}	Static Drain-Source On-Resistance ₂	V _{GS} =10V, I _D =8A	-	13	14	mΩ
		V _{GS} =4.5V, I _D =6A	-	23	29	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1	-	3	V
g _{fs}	Forward Transconductance	V _{DS} =10V, I _D =8A	-	27	-	S
I _{DSS}	Drain-Source Leakage Current	V _{DS} =24V, V _{GS} =0V	-	-	10	uA
I _{GSS}	Gate-Source Leakage	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Q _g	Total Gate Charge ₂	I _D =1A	-	5	-	nC
Q _{gs}	Gate-Source Charge	V _{DS} =15V	-	2	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =4.5V	-	1.8	-	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =15V	-	7	-	ns
t _r	Rise Time	I _D =1A	-	8	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =3.3Ω	-	15	-	ns
t _f	Fall Time	V _{GS} =10V	-	3	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	530	-	pF
C _{oss}	Output Capacitance	V _{DS} =15V	-	90	-	pF
C _{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	60	-	pF
R _g	Gate Resistance	f=1.0MHz	-	2.5	-	Ω

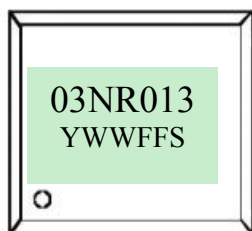
»Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V _{SD}	Forward On Voltage ²	I _S =1.7A, V _{GS} =0V	-	-	1.2	V
t _{rr}	Reverse Recovery Time	I _S =6A, V _{GS} =0V	-	7.5	-	ns
Q _{rr}	Reverse Recovery Charge	dI/dt=100A/μs	-	2	-	nC

Notes:

1. Pulse width limited by Max. junction temperature.
2. Pulse test
3. Surface mounted on 1 in² 2oz copper pad of FR4 board, t ≤10sec ; 210°C/W when mounted on min. copper pad.

»Marking Information



Package	PDFN3x3	
XXXX	Part Number	
PP	Package Code	
Y	Year	F=2020 , G=2021,
WW	Weeks	Ex. 10/27=44weeks, 11/3=45weeks
FF	Wafer lot	Lot No.
S	Serial	Serial No.
Dot	First pin	

» Typical Characteristics

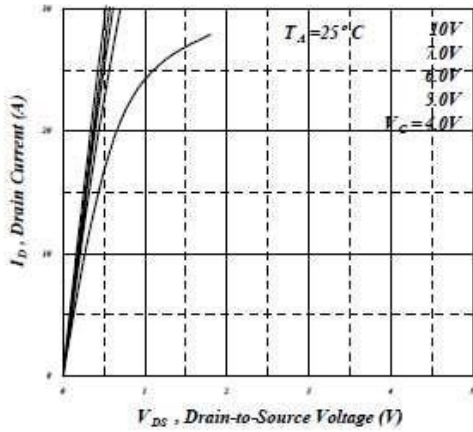


Fig 1. Typical Output Characteristics

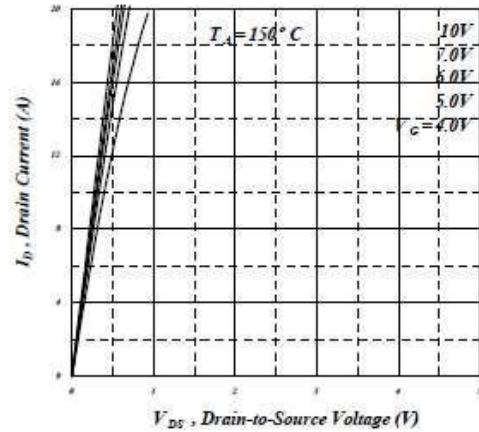


Fig 2. Typical Output Characteristics

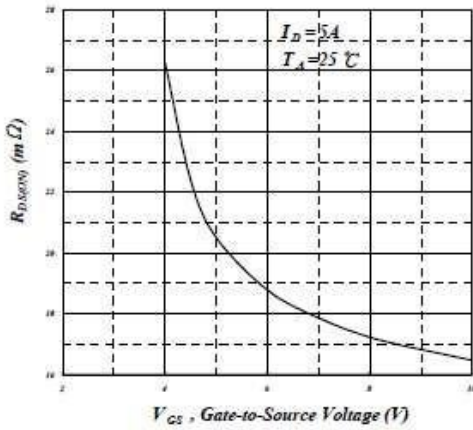


Fig 3. On-Resistance v.s. Gate Voltage

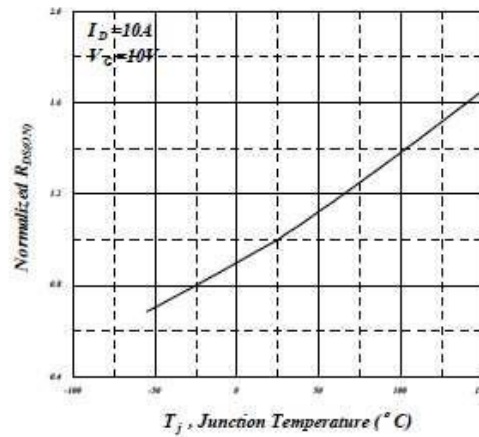


Fig 4. Normalized On-Resistance v.s. Junction Temperature

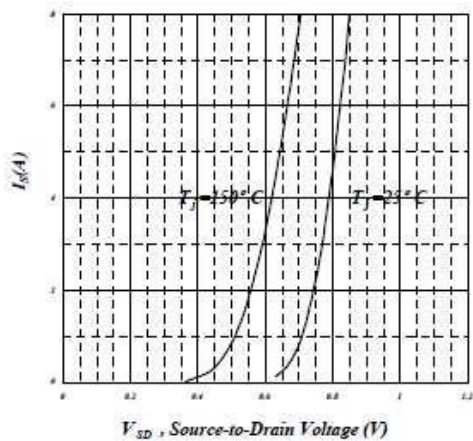


Fig 5. Forward Characteristic of Reverse Diode

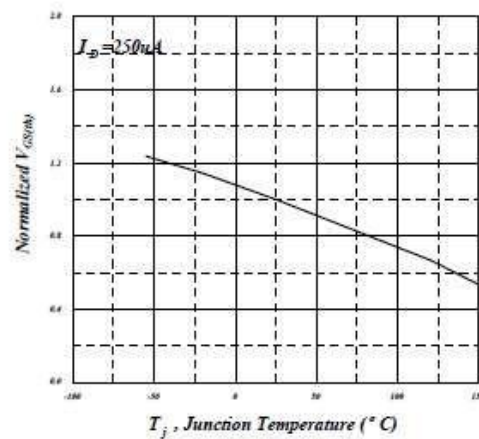


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

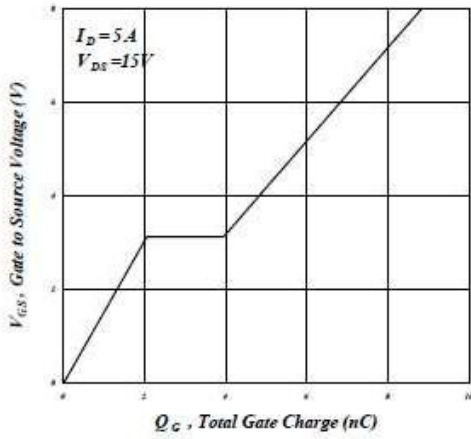


Fig 7. Gate Charge Characteristics

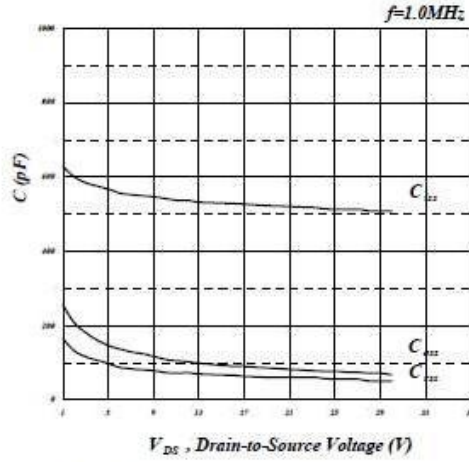


Fig 8. Typical Capacitance Characteristics

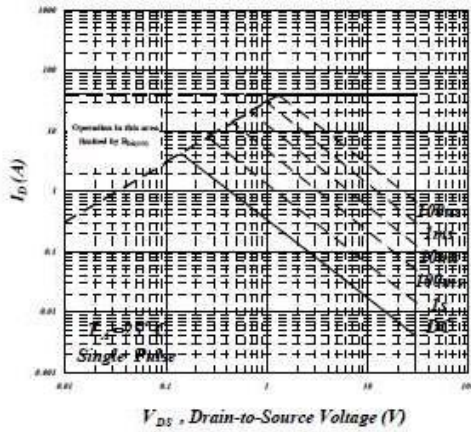


Fig 9. Maximum Safe Operating Area

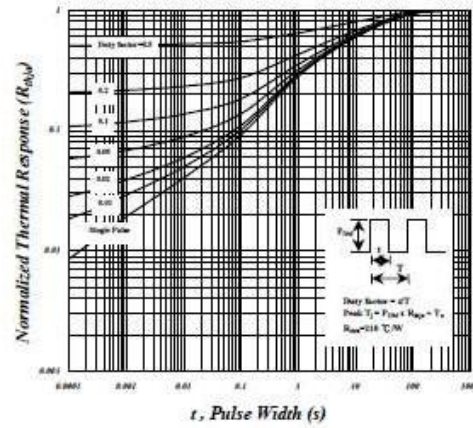


Fig 10. Effective Transient Thermal Impedance

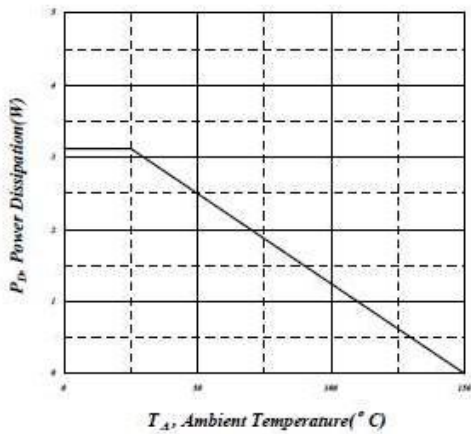


Fig 11. Total Power Dissipation

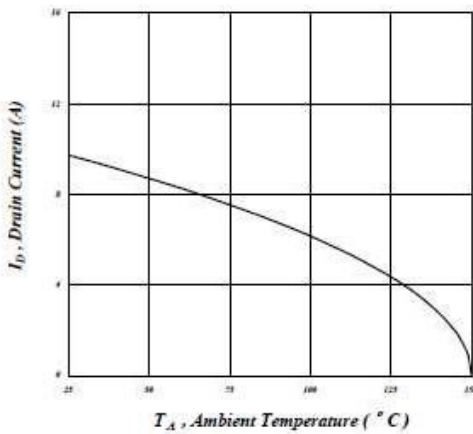
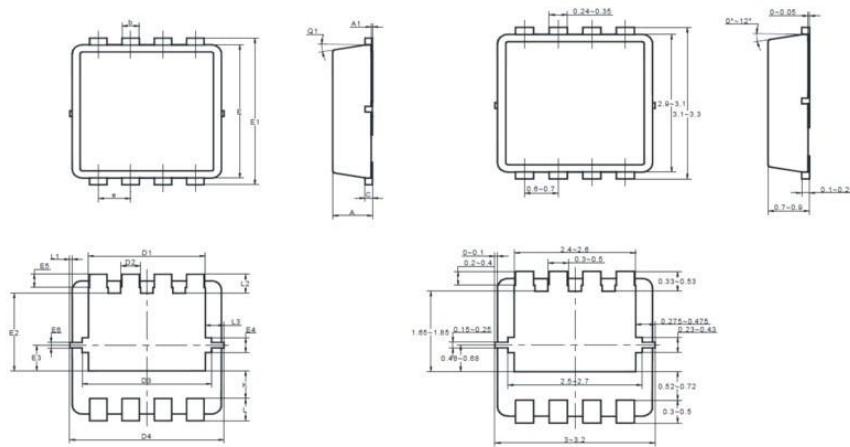


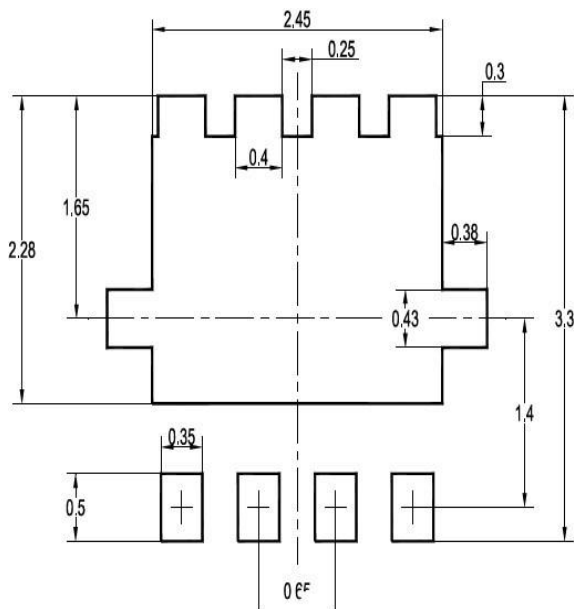
Fig 12. Drain Current v.s. Ambient Temperature

»Package Outline : PDFN 3x3



UNIT	A	A1	b	c	D1	D2	D3	D4	E	E1	E2	E3	E4
mm	0.9	0.05	0.35	0.25	2.6	0.5	2.7	3.2	3.1	3.3	1.85	0.68	0.43
	0.7	0	0.24	0.1	2.4	0.3	2.5	3	3.1	3.1	1.65	0.48	0.23
UNIT	E5	E6	e	K	L	L1	L2	L3	θ1				
mm	0.4	0.25	0.7	0.72	0.5	0.1	0.53	0.475	12°				
	0.2	0.15	0.6	0.52	0.3	0	0.33	0.275	0°				

»PDFN 3x3 FOOTPRINT: (mm)



»Ordering information

Order code	Package	Base qty	Delivery mode
CT03NR013Q	PDFN3x3	3k	Tape and reel