

Descriptions

This is 100V 72A N-CHANNEL MOSFET in PDFN5*6-8L Package.

Features

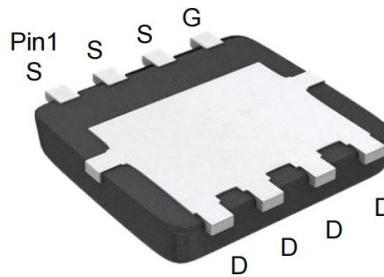
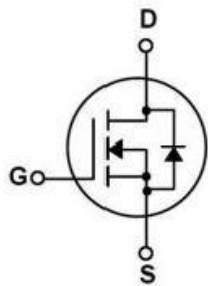
- Low $R_{DS(ON)}$ - Ensures On-State Losses are Minimized
- Excellent $Q_{gd} \times R_{DS(ON)}$ Product(FOM)
- Advanced Technology for DC-DC Converts
- Small Form Factor Thermally Efficient Package Enables Higher Density End Products
- 100% UIS (Avalanche) Rated
- Lead-Free Finish
- RoHS Compliant Halogen and Antimony Free. "Green" Device

Parameter	Value	Unit
V_{DS}	100	V
I_D	72	A
$R_{DS(ON)(MAX)}@10V$	8.5	m Ω

Applications

- PWM applications
- Load switch
- Power management
- DC-DC Converters
- Wireless Chargers

Equivalent Circuit & Pinning



PDFN5*6-8L

Absolute Maximum Ratings(Ta=25°C)

Rating		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Drain Current-Continuous ¹⁾	$T_C=25^{\circ}\text{C}$	I_D	72	A
	$T_C=100^{\circ}\text{C}$		45	
Pulsed Drain Current ²⁾		I_{DM}	280	A
Total Power Dissipation ³⁾		P_D	77.2	W
Avalanche Current ⁴⁾		I_{AS}	31	A
Avalanche Energy ⁴⁾		E_{AS}	245	mJ
Thermal Resistance , Junction-to-Case ⁵⁾		$R_{\theta JC}$	1.6	°C/W
Thermal Resistance Junction-to-Ambient ⁶⁾		$R_{\theta JA}$	44.9	°C/W
Junction and Storage Temperature Range		T_J, T_{STG}	-55~+150	°C

Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D = 250μA	100	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 100V, V _{GS} = 0V	-	-	1.0	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V	-	-	±100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.2	1.7	2.2	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D = 20A	-	6.8	8.5	mΩ
		V _{GS} = 4.5V, I _D = 15A	-	9.2	11.5	
Dynamic Characteristics ⁷⁾						
Input Capacitance	C _{iss}	V _{DS} = 50V, V _{GS} = 0V, f = 1.0MHz	-	1801	-	pF
Output Capacitance	C _{oss}		-	555	-	
Reverse Transfer Capacitance	C _{rss}		-	14.6	-	
Switching Characteristics ⁷⁾						
Turn-on Delay Time	t _{d(on)}	V _{DS} = 50V, V _{GS} = 10V, I _D = 20A, R _{GEN} = 3Ω	-	7.8	-	ns
Turn-on Rise Time	t _r		-	4.1	-	
Turn-Off Delay Time	t _{d(off)}		-	22.6	-	
Turn-Off Fall Time	t _f		-	10.2	-	
Total Gate Charge	Q _g	V _{DS} = 50V, V _{GS} = 10V, I _D = 20A	-	28.2	-	nC
Gate-Source Charge	Q _{gs}		-	3.2	-	
Gate-Drain Charge	Q _{gd}		-	4.6	-	
Gate Resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz	-	0.9	-	Ω
Drain-Source Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = 20A	0.5	0.85	1.2	V

Notes:

1. Computed continuous current assumes the condition of T_{J_Max} while the actual continuous current depends on the thermal & electro-mechanical application board design.
2. Repetitive Rating: Pulse width limited by maximum junction temperature($T_{J_Max}=150^\circ C$).
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. This single-pulse measurement was taken under the following condition [$L=0.5mH, V_{GS}=10V, V_{DS}=80V$]while it's value is limited by $T_{J_Max}=150^\circ C$.
5. Device mounted on infinite heatsink.
6. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper pad layout.
7. Guaranteed by design, not subject to production.

Electrical Characteristic Curve

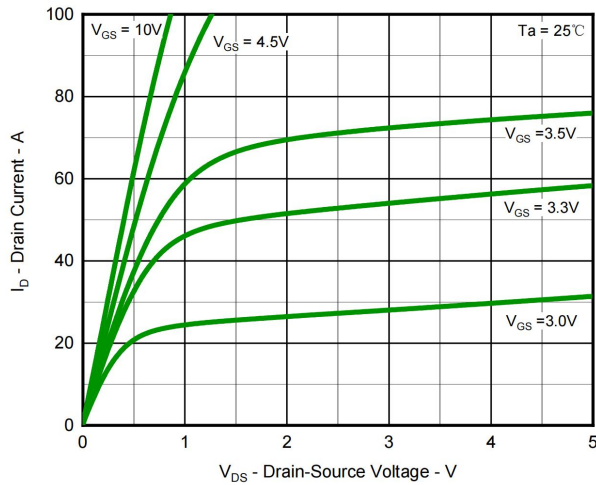


Fig.1 Output Characteristics

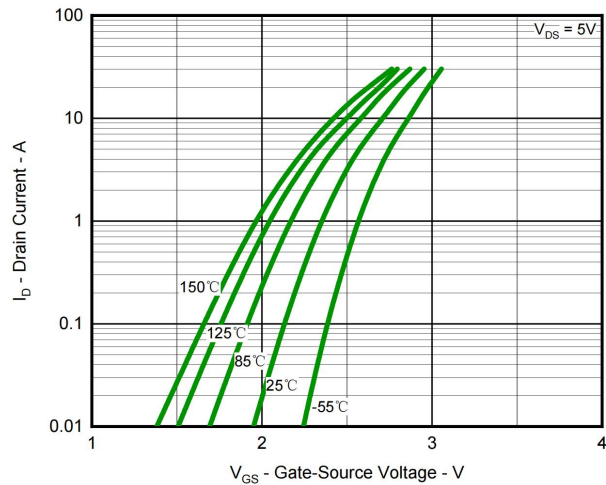


Fig.2 Typical Transfer Characteristic

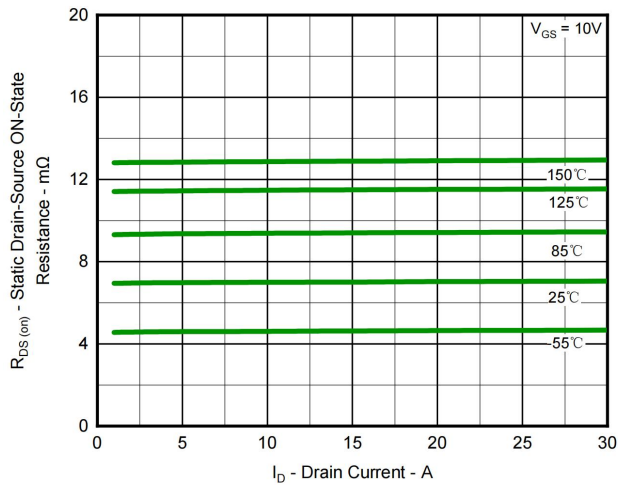


Fig.3 Typical On-Resistance vs Drain Current and Temperature

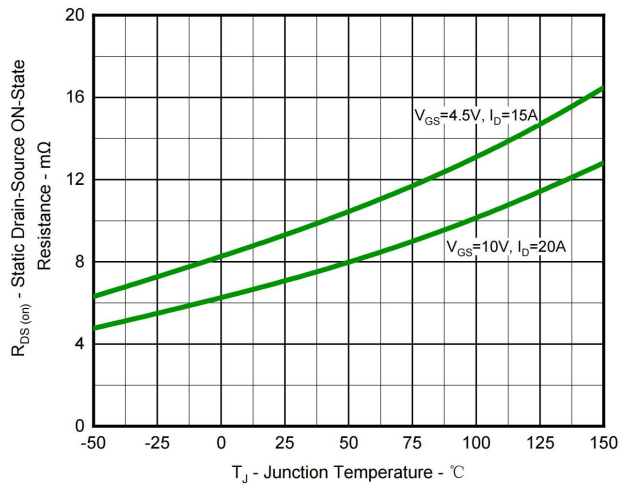


Fig.4 On-Resistance Variation with Temperature

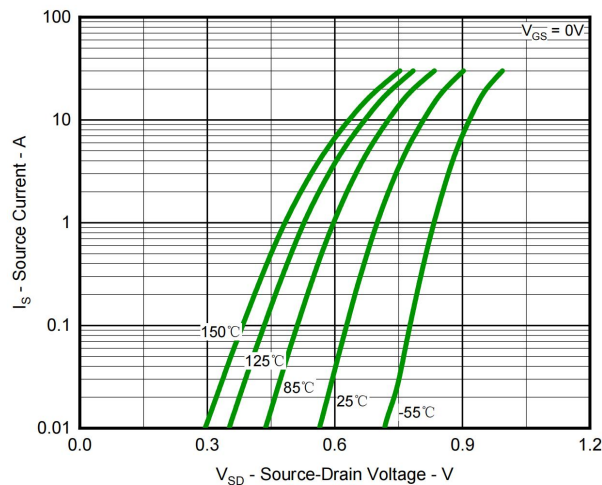


Fig.5 Diode Forward Voltage vs. Current

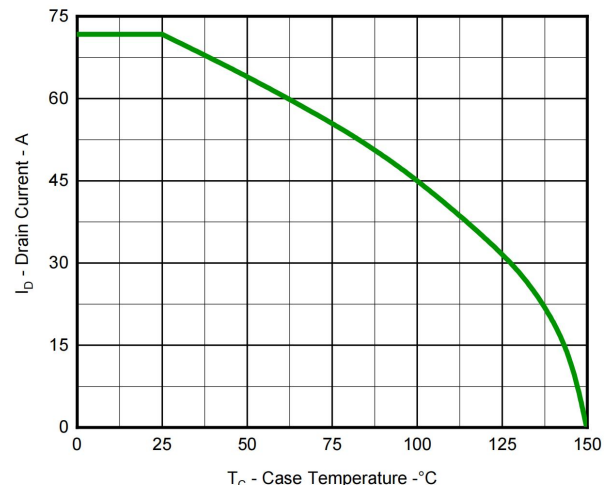
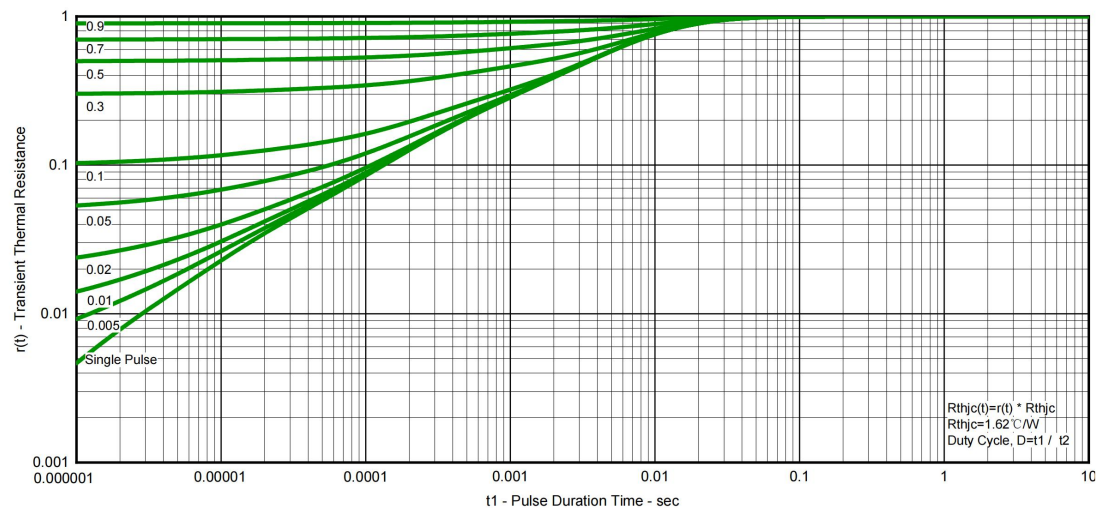
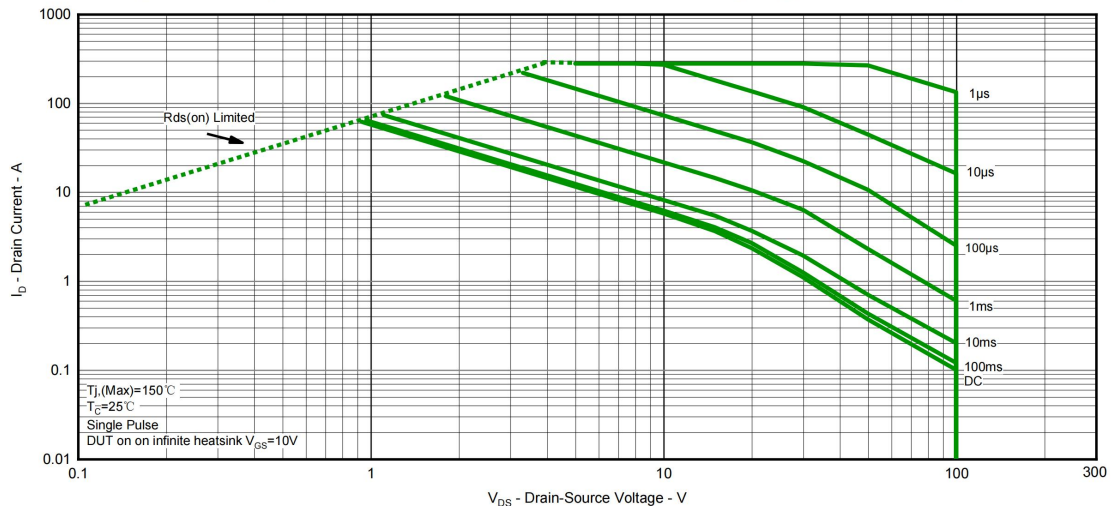
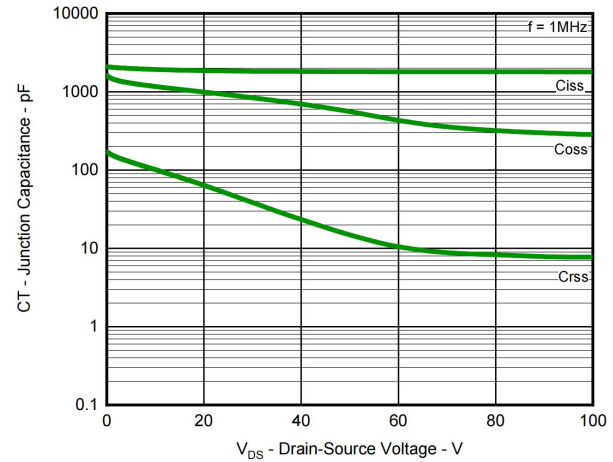
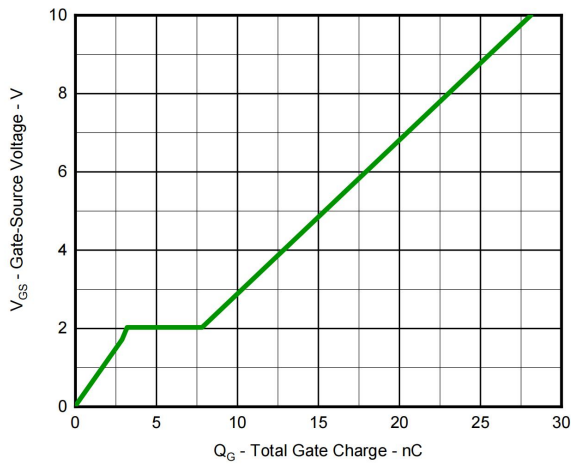
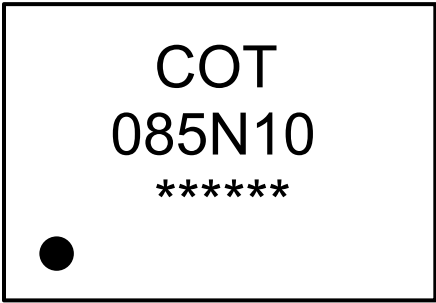


Fig.6 Maximum Drain Current vs. Case Temperature

Electrical Characteristic Curve



Marking Instructions



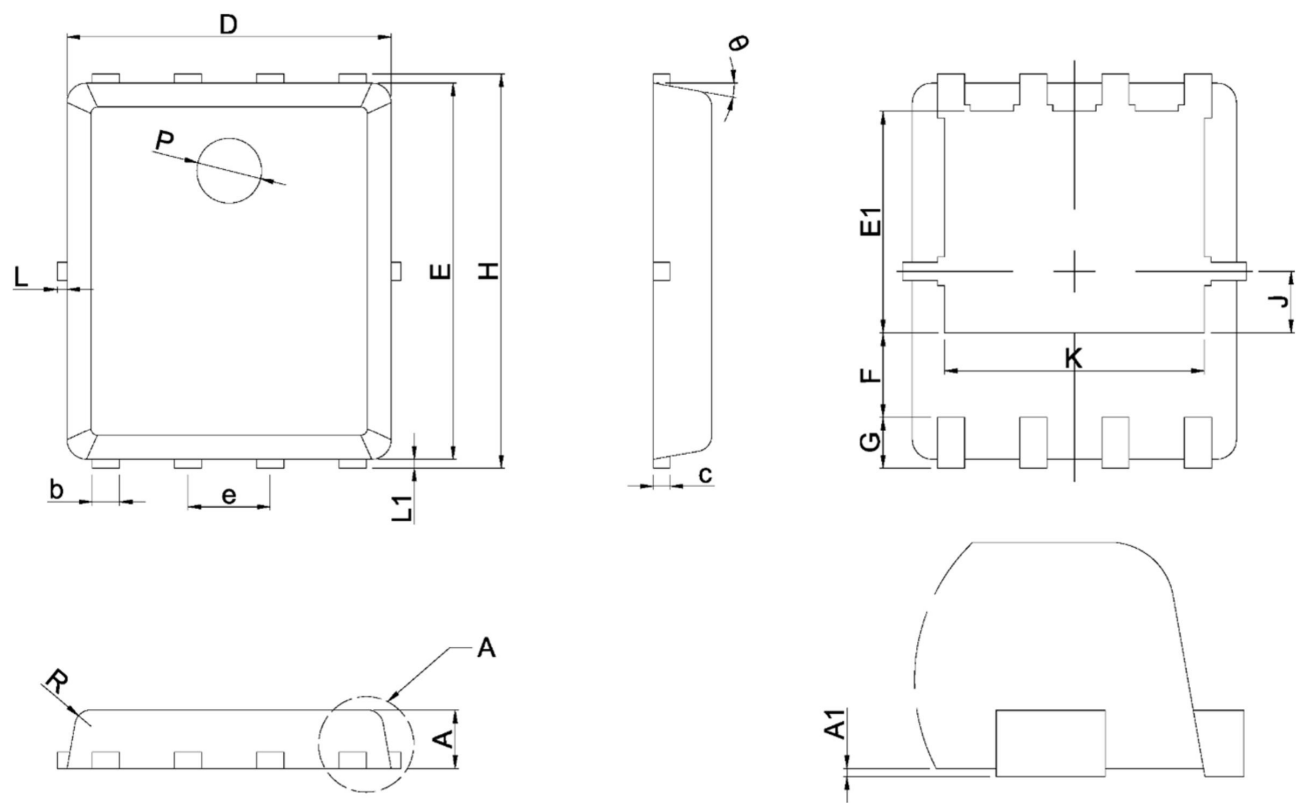
Note:
085N10: Product Type.
*****: *: Inner Code * : Year Code **: Week Code **: Lot Code.

Packaging SPEC

Device	Package	Reel	Shipping
CT085N10ZC	PDFN5*6-8L	13"	5000 / Tape & Reel

Package Outline Dimensions

PDFN5*6-8L



Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	0.80	1.00	0.031	0.039
A1	0.00	0.05	0.000	0.002
b	0.35	0.49	0.014	0.019
c	0.254 Ref.		0.010 Ref.	
D	4.90	5.10	0.193	0.201
E	5.70	5.90	0.224	0.232
E1	3.35	3.65	0.132	0.144
e	1.27 BSC.		0.050 BSC.	
F	1.40 Ref.		0.055 Ref.	
G	0.60 Ref.		0.024 Ref.	
H	5.95	6.20	0.234	0.244
J	0.95 BSC.		0.037 BSC.	
K	4.00 Ref.		0.157 Ref.	
L	-	0.15	-	0.006
L1	0.10	0.18	0.004	0.007
P	1.00 Ref.		0.039 Ref.	
R	0.25 Ref.		0.010 Ref.	
θ	6°	14°	6°	14°