

Descriptions

This is 100V 80A N-CHANNEL MOSFET in PDFN5*6-8L Package.

Features

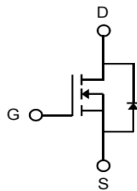
- Low $R_{DS(ON)}$ - Ensures On-State Losses are Minimized
- Excellent $Q_{gd} \times R_{DS(ON)}$ Product(FOM)
- Advanced Technology for DC-DC Converts
- Small Form Factor Thermally Efficient Package Enables Higher Density End Products
- 100% UIS (Avalanche) Rated
- Lead-Free Finish ; RoHS Compliant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

MOSFET Product Summary		
$V_{DS}(V)$	$R_{DS(on)}(m\Omega)$	$I_D(A)$
100	5.5@ $V_{GS} = 10V$	80
	8.0@ $V_{GS} = 4.5V$	

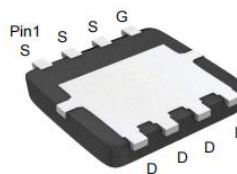
Applications

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

Equivalent Circuit & Pinning



Circuit Diagram



Bottom View

Absolute maximum rating@25°C

Rating		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current-Continuous ¹⁾	$T_C=25^\circ C$	I_D	80	A
	$T_C=100^\circ C$		50.8	
Pulsed Drain Current ²⁾		I_{DM}	320	A
Total Power Dissipation		P_D	97	W
Avalanche Current ³⁾		I_{AS}	67	A
Avalanche Energy ³⁾		E_{AS}	224.5	mJ
Thermal Resistance , Junction-case ⁴⁾		$R_{\theta JC}$	1.29	$^\circ C/W$
Thermal Resistance Junction-to-Ambient ⁵⁾		$R_{\theta JA}$	44.5	$^\circ C/W$
Junction and Storage Temperature Range		T_J, T_{STG}	-55~+150	$^\circ C$

Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	100	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 100V, V_{GS} = 0V$	-	-	1.0	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	± 100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	2.0	3.0	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 20A$	-	5.5	6.5	m Ω
		$V_{GS} = 4.5V, I_D = 15A$	-	8.0	10	
Dynamic Characteristics ⁶⁾						
Input Capacitance	C_{iss}	$V_{DS} = 50V, V_{GS} = 0V, f = 1.0MHz$	-	2250	-	pF
Output Capacitance	C_{oss}		-	620	-	
Reverse Transfer Capacitance	C_{rss}		-	13	-	
Switching Characteristics ⁶⁾						
Turn-on Delay Time	$t_{d(on)}$	$V_{DS} = 50V, V_{GS} = 10V, I_D = 20A, R_{GEN} = 6\Omega$	-	10.8	-	ns
Turn-on Rise Time	t_r		-	11.3	-	
Turn-Off Delay Time	$t_{d(off)}$		-	44.6	-	
Turn-Off Fall Time	t_f		-	17.9	-	
Total Gate Charge	Q_g	$V_{DS} = 50V, V_{GS} = 10V, I_D = 20A$	-	31	-	nC
Gate-Source Charge	Q_g^s		-	9.0	-	
Gate-Drain Charge	Q_{gd}		-	5.2	-	
Gate Resistance	R_g	$V_{GS}=0V, V_{DS}=0V, f=1MHz$	-	1.3	-	Ω
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS} = 0V, I_S = 50A$	-	0.9	1.4	V
Body Diode Reverse Recovery Time	t_{rr}	$I_F=10A, d/d_i=100A/\mu s, V_R=50V$	-	39	-	ns
Body Diode Reverse Recovery Charge	Q_{rr}		-	63	-	nC

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. This single-pulse measurement was taken under the following condition [$L=100\mu H, V_{GS}=10V, V_{DS}=100V$]while it's value is limited by $T_{J_Max}=150^\circ C$.
4. Device mounted on infinite heatsink.
5. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper pad layout.
6. Guaranteed by design, not subject to production.

Electrical Characteristic Curve

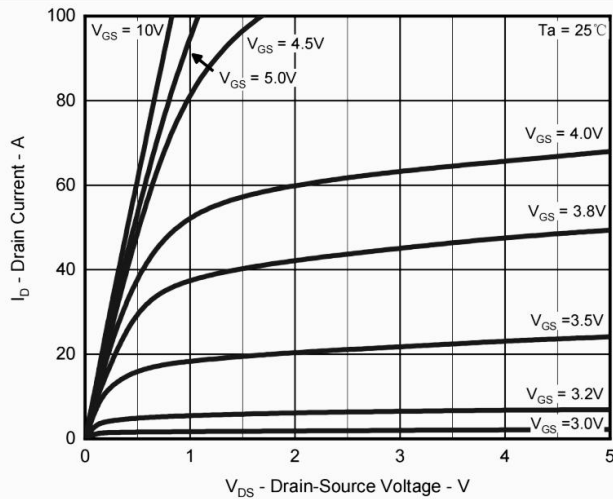


Fig.1 Output Characteristics

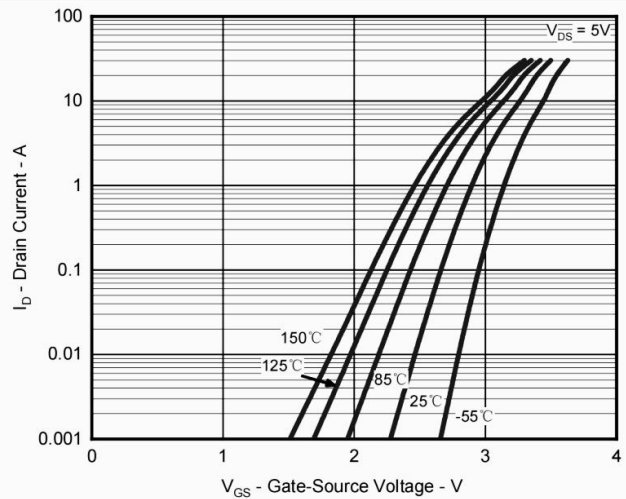


Fig.2 Typical Transfer Characteristic

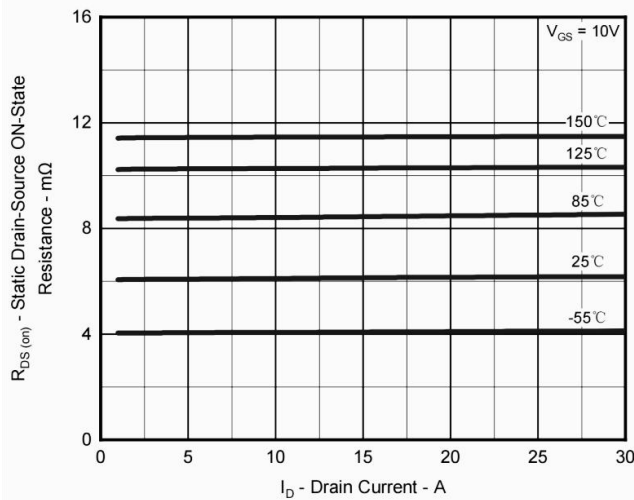


Fig.3 Typical On-Resistance vs Drain Current and Temperature

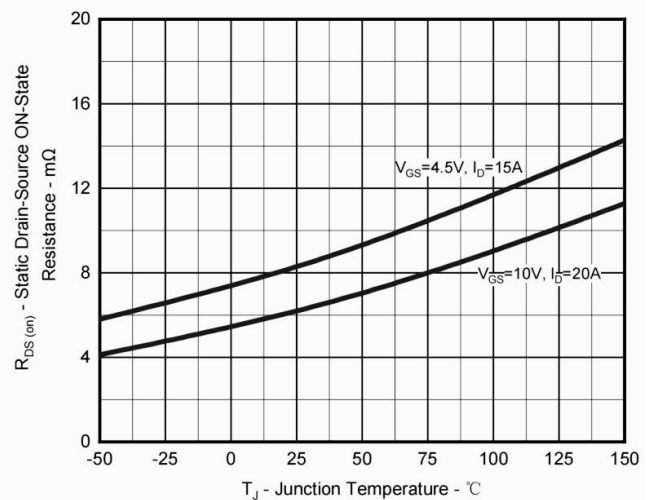


Fig.4 On-Resistance Variation with Temperature

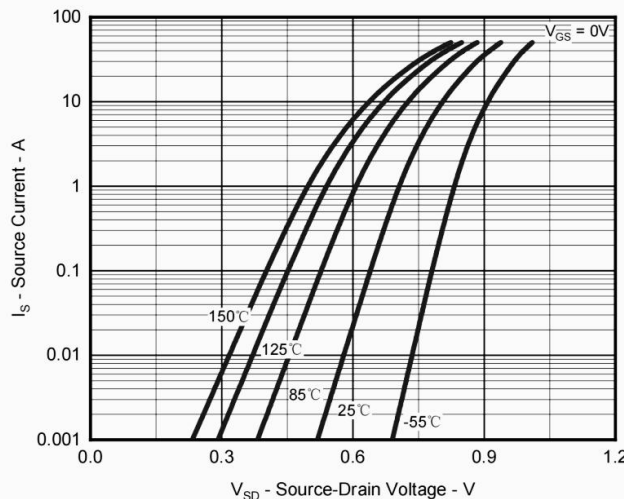


Fig.5 Diode Forward Voltage vs. Current

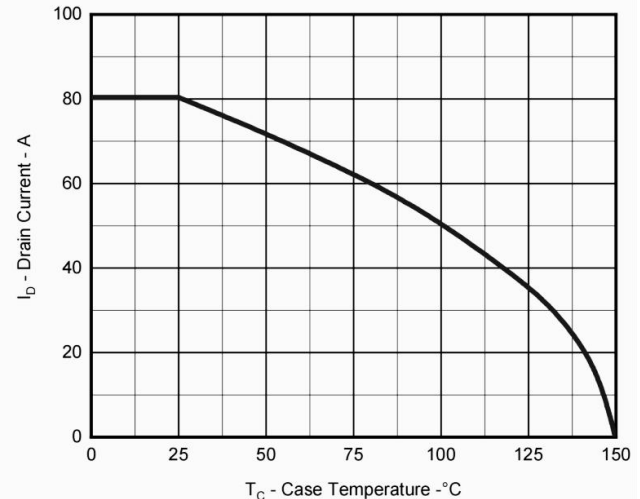
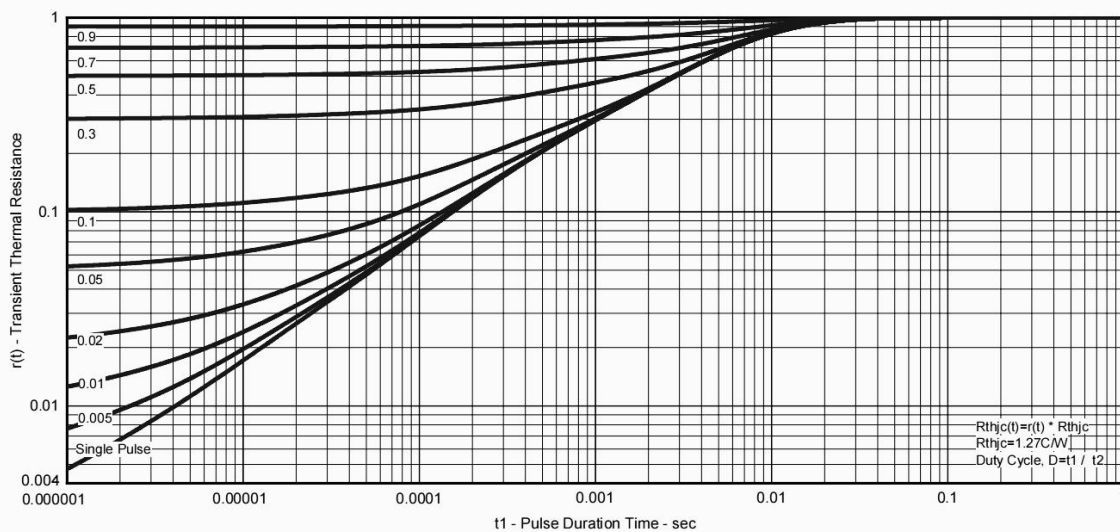
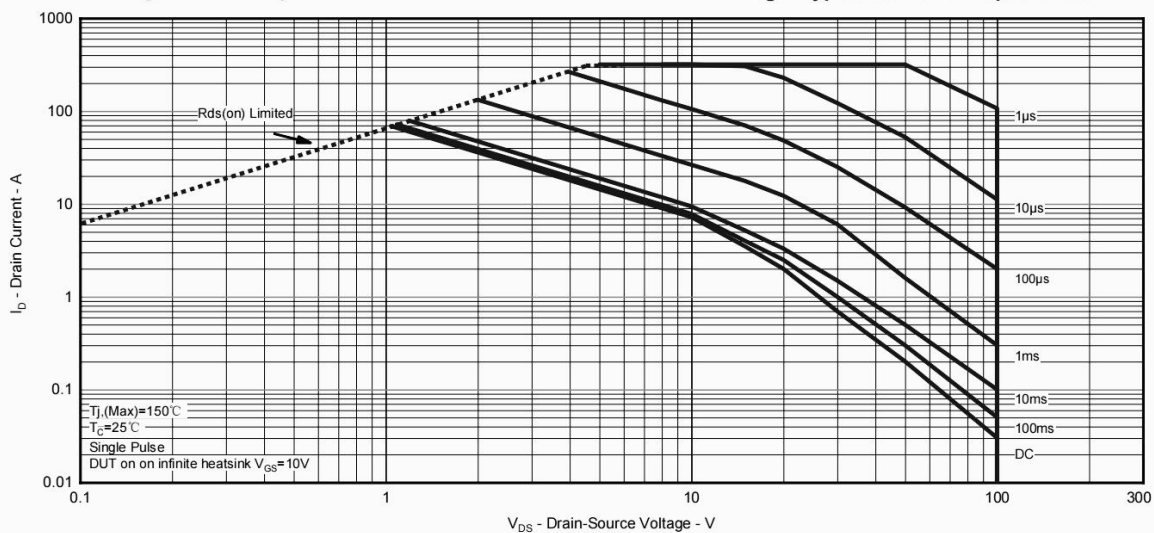
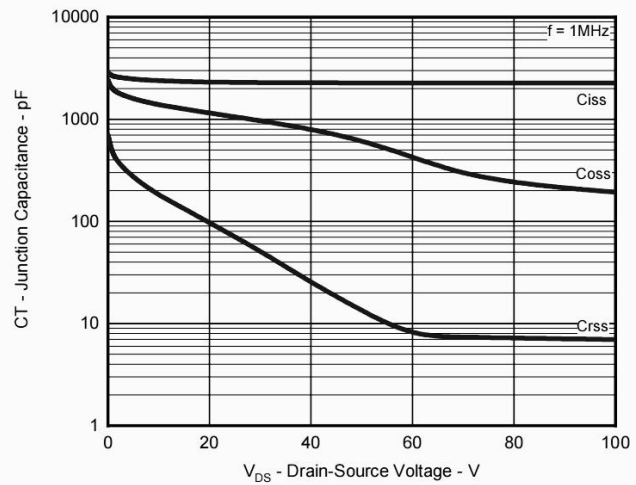
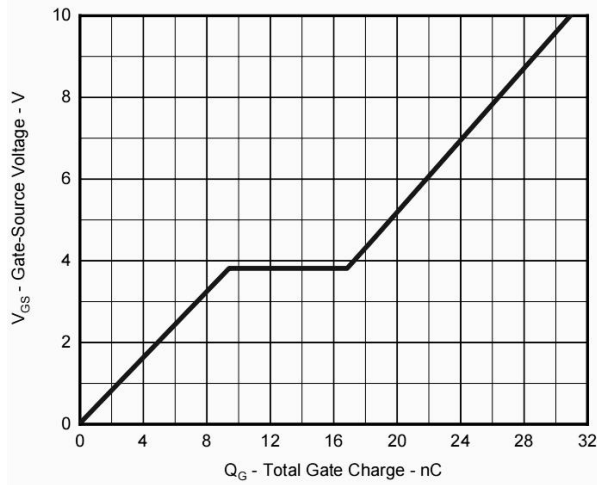
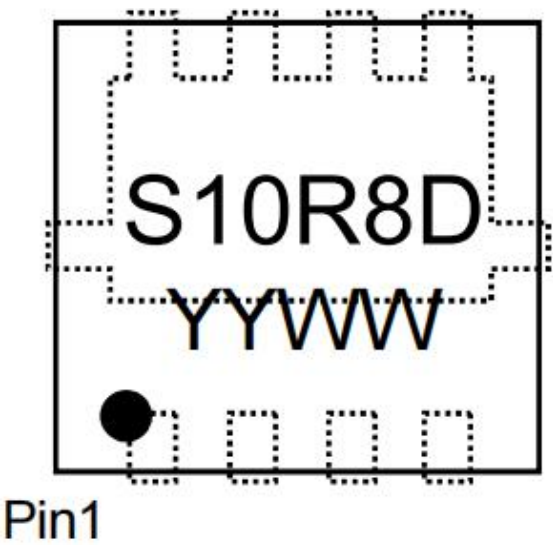


Fig.6 Maximum Drain Current vs. Case Temperature

Electrical Characteristic Curve



Marking Instructions

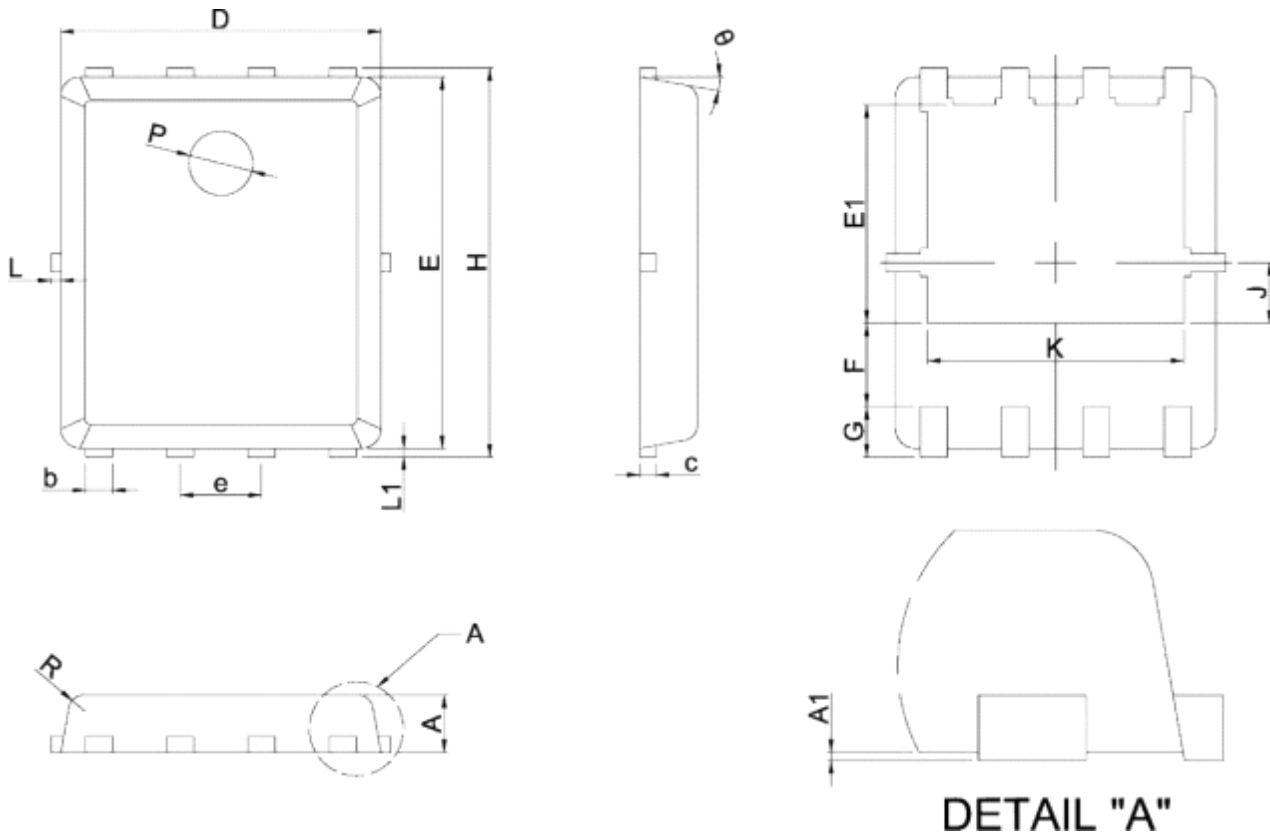


Note:
S10R8D: Product Type.

Packaging SPEC

Device	Package	Reel	Shipping
CTCS065N10ZC	PDFN5*6-8L	13"	5000 / Tape & Reel

Package Outline Dimensions



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°