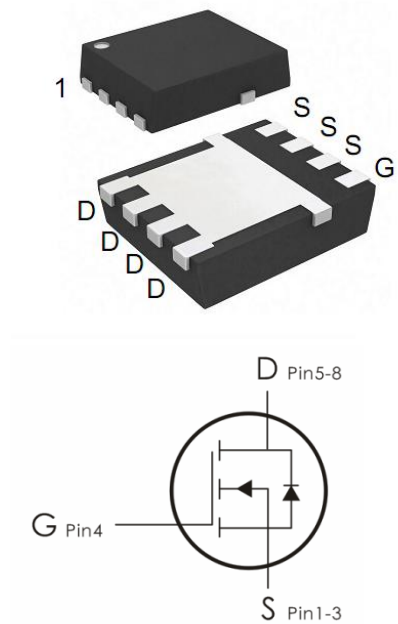


Description:

This N-Channel MOSFET uses advanced SGT technology and design to provide excellent $R_{DS(on)}$ with low gate charge. It can be used in a wide variety of applications.

Features:

- 1) $V_{DS}=30V, I_D=110A, R_{DS(ON)}<2.9m\ \Omega$ @ $V_{GS}=10V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra low $R_{DS(ON)}$.
- 5) Excellent package for good heat dissipation.



Absolute Maximum Ratings: ($T_C=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current- $T_C=25^\circ\text{C}$	110	A
	Continuous Drain Current- $T_C=25^\circ\text{C}$	70	
I_{DM}	Pulsed Drain Current	160	
I_{AS}	Avalanche Current	26	A
E_{AS}	Single Pulse Avalanche Energy	83.5	mJ
P_D	Power Dissipation	56	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ\text{C}$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	2.2	$^\circ\text{C}/\text{W}$

R_{θJA}	Thermal Resistance Junction to mbient	55	°C/W
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Package Marking and Ordering Information:

Part NO.	Marking	Package
NC003TG	C003T	DFN5*6-8

Electrical Characteristics: (T_C=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μ A	30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =30V	---	---	1	μ A
I_{GSS}	Gate-Source Leakage Current	V _{GS} =± 20V, V _{DS} =0A	---	---	± 100	nA
On Characteristics						
V_{GS(th)}	GATE-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μ A	1	---	2	V
R_{DS(on)}	Drain-Source On Resistance	V _{GS} =10V, I _D =20A	---	2.3	2.9	m Ω
		V _{GS} =4.5V, I _D =20A	---	3.3	4.2	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	---	2225	---	pF
C_{oss}	Output Capacitance		---	986	---	
C_{rss}	Reverse Transfer Capacitance		---	100	---	
Switching Characteristics						
t_{d(on)}	Turn-On Delay Time	V _{DD} =15V, V _{GS} =10V, R _G =3 Ω, I _D =20A	---	15	---	ns
t_r	Rise Time		---	5	---	ns
t_{d(off)}	Turn-Off Delay Time		---	35	---	ns
t_f	Fall Time		---	9	---	ns
Q_g	Total Gate Charge	V _{GS} =4.5V, V _{DS} =15V, I _D =20A	---	6	---	nC
Q_{gs}	Gate-Source Charge		---	5.5	---	nC
Q_{gd}	Gate-Drain "Miller" Charge		---	29.5	---	nC
Drain-Source Diode Characteristics						

Symbol	Parameter	Conditions	Min	Typ	Max	Units
V_{SD}	Source-Drain Diode Forward Voltage ³	$V_{GS}=0V, I_S=20A$	---	0.8	---	V
t_{rr}	Continuous Source Current	$I_{SD} = 20A$	---	24	---	ns
q_{rr}	Pulsed Source Current	$dI_{SD}/dt = 100 A/\mu s$	---	30	---	nC

Typical Characteristics: ($T_C=25^\circ C$ unless otherwise noted)

