

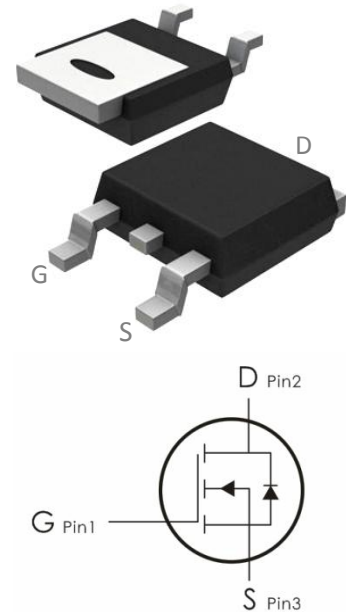
Description:

This N-Channel MOSFET uses advanced trench 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) $V_{DS}=70V, I_D=70A, R_{DS(on)} < 8.6m\Omega @ V_{GS}=10V$
- 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: ($T_C=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	70	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current- $T_C=25^\circ C^1$	70	A
	Continuous Drain Current- $T_C=100^\circ C^1$	52	A
I_{DM}	Pulse Drain Current Tested ²	320	A
P_D	Power Dissipation	116	W
E_{AS}	Single pulse avalanche energy	121	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +175	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case ¹	0.85	$^\circ C/W$

Package Marking and Ordering Information:

Part NO.	Marking	Package
DOD70N07	70N07	TO-252

Electrical Characteristics: ($T_C=25^{\circ}\text{C}$ 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	70	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =68V, V _{GS} =0V	---	---	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	2	---	4	V
R _{DS(ON)}	Drain-Source On Resistanc ²	V _{GS} =10V, I _D =30A	---	6.6	8.6	m Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	---	4000	---	pF
C _{oss}	Output Capacitance		---	258	---	
C _{rss}	Reverse Transfer Capacitance		---	225	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DD} =30V , V _{GS} =10V , R _G =6Ω , I _D =20A	---	13	---	ns
t _r	Rise Time		---	90	---	ns
t _{d(off)}	Turn-Off Delay Time		---	43	---	ns
t _f	Fall Time		---	30	---	ns
Q _g	Total Gate Charge	V _{GS} =10V, V _{DS} =30V, I _D =20A	---	33	---	nC
Q _{gs}	Gate-Source Charge		---	8	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	7	---	nC
Drain-Source Diode Characteristics						
I _S	Continuous Source Current	-	---	---	70	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current	-	---	---	320	A

V_{SD}	Diode Forward Voltage ²	V _{GS} =0V , I _S =80A	---	---	1.2	V
T_{rr}	Reverse Recovery Time	I _F =20A , dI/dt=100A/μs , T _J =25°C	---	78	---	ns
Q_{rr}	Reverse Recovery Charge		---	51	---	nC

Notes:

- 1.Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
- 2.EAS condition : T_J=25°C , V_{DD}=35V, V_G=10V, L=0.5mH, R_g=25Ω, I_{AS}=22A
- 3.Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typical Characteristics:

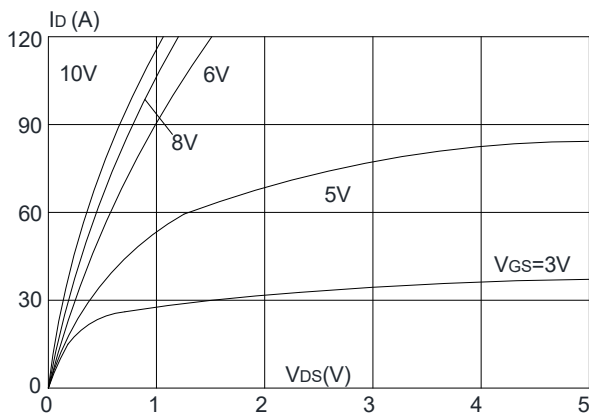


Figure1: Output Characteristics

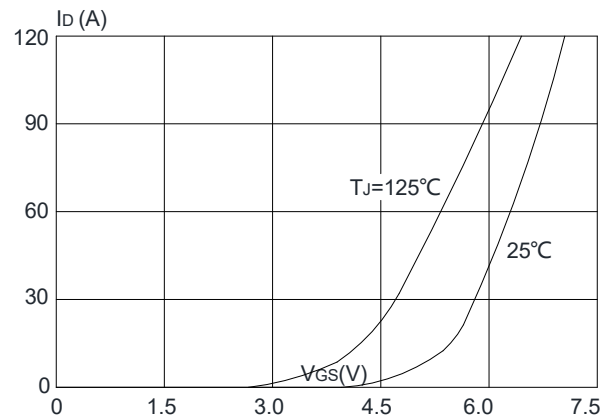


Figure 2: Typical Transfer Characteristics

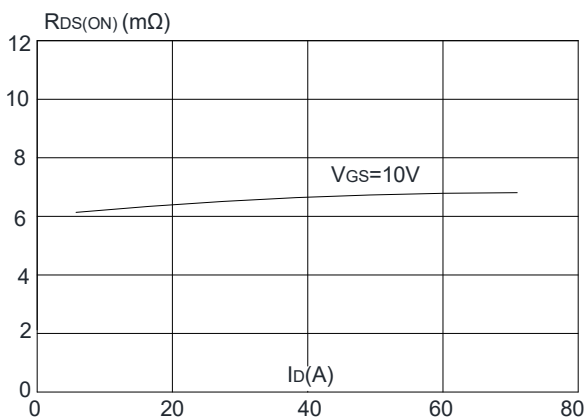


Figure 3:On-resistance vs. Drain Current

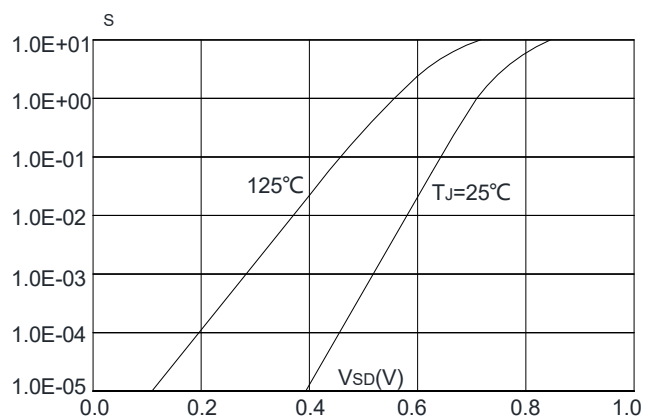


Figure 4: Body Diode Characteristics

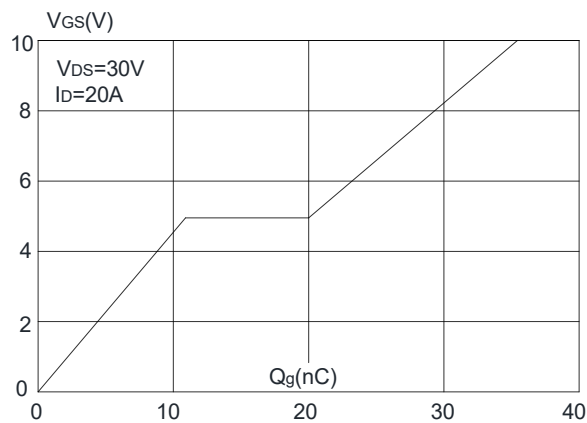


Figure 5: Gate Charge Characteristics

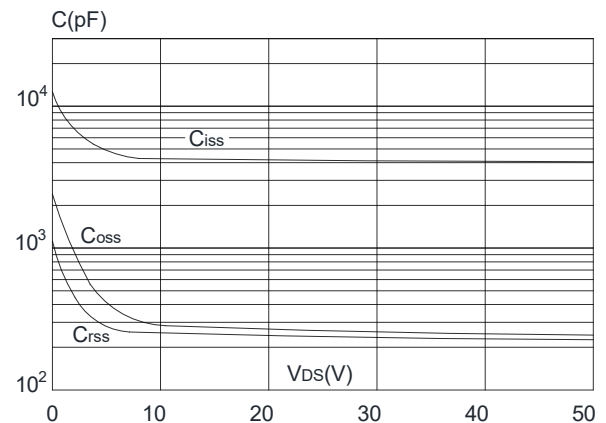


Figure 6: Capacitance Characteristics

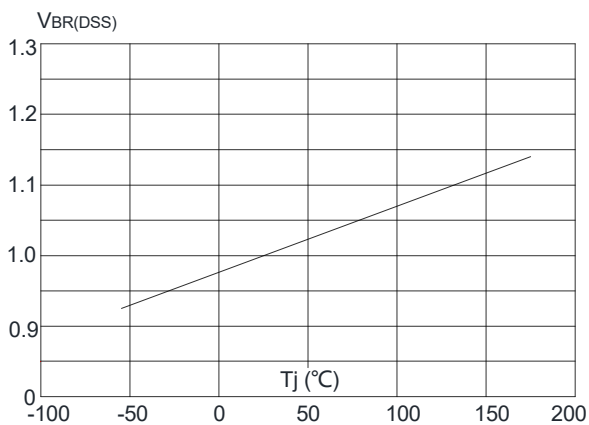


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

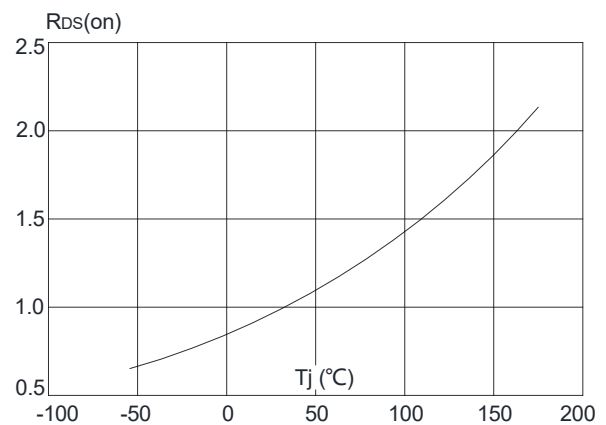


Figure 8: Normalized on Resistance vs. Junction Temperature

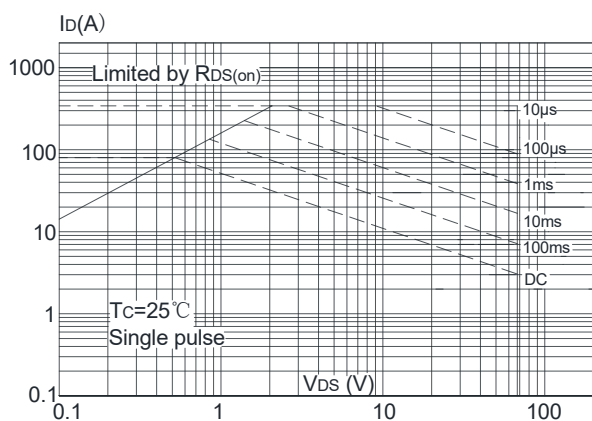


Figure 9: Maximum Safe Operating Area

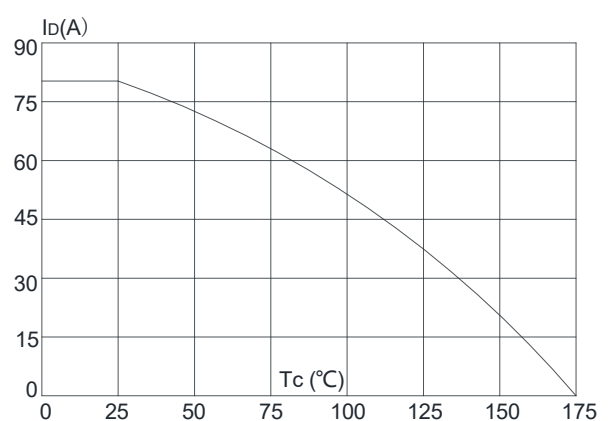


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

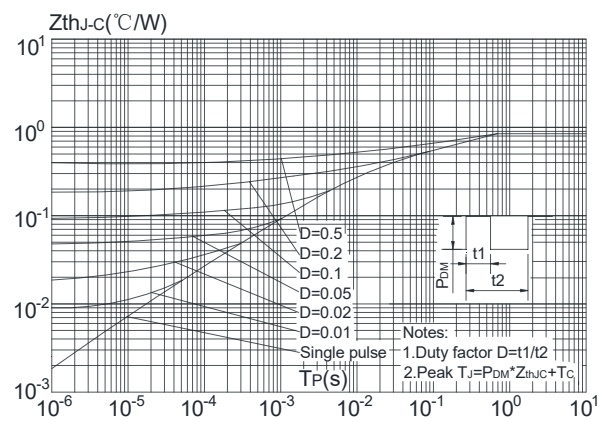


Figure.11: Maximum Effective
Transient Thermal Impedance, Junction-to-Case