

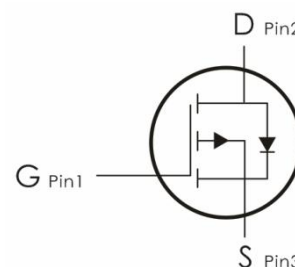
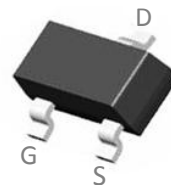
Description:

This P-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) $V_{DS}=-40V, I_D=-5A, R_{DS(on)} < 90m\Omega @ V_{GS}=-10V$ (Typ : $70m\Omega$)
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra $R_{DS(on)}$.
- 5) Excellent package for good heat dissipation.



Absolute Maximum Ratings: ($T_A=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	-40	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current- $T_A=25^\circ C$	-5	A
	Continuous Drain Current- $T_A=100^\circ C$	-3.3	A
I_{DM}	Pulse Drain Current Tested	-20	A
P_D	Power Dissipation- $T_A=25^\circ C$	3.8	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	32.9	$^\circ C/W$

Package Marking and Ordering Information:

Part NO.	Marking	Package
DO4085A	4085	SOT-23

Electrical Characteristics: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Sourctce Breakdown Voltage	V _{GS} =0V, I _D =250 μ A	-40	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =-40V	---	---	-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	-1.0	-1.6	-2.5	V
R _{DS(ON)}	Drain-Source On Resistance	V _{GS} =-10V, I _D =-3A	---	70	90	m Ω
		V _{GS} =-4.5V, I _D =-2A	---	90	125	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =-20V, V _{GS} =0V, f=1MHz	---	570	---	pF
C _{OSS}	Output Capacitance		---	50	---	
C _{rss}	Reverse Transfer Capacitance		---	40	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =-20V, R _{GEN} =2.5 Ω , V _{GS} =-10V, I _D =-5A	---	6.3	---	ns
t _r	Rise Time		---	13	---	ns
t _{d(off)}	Turn-Off Delay Time		---	33	---	ns
t _f	Fall Time		---	17	---	ns
Q _g	Total Gate Charge	V _{GS} =-10V, V _{DS} =-20V, I _D =-3A	---	7	---	nC
Q _{gs}	Gate-Source Charge		---	1.3	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	1.7	---	nC
Drain-Source Diode Characteristics						
V _{SD}	Forward Voltage	V _{GS} =0V, I _S =-5A	---	-0.8	-1.2	V
T _{rr}	Reverse Recovery Time	V _G S=0V, I _S = -5A,	----	23	---	nS

Qrr	Reverse Recovery Time	di/dt=100A/μs	---	25.2	---	nC
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Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

Typical Performance Characteristics

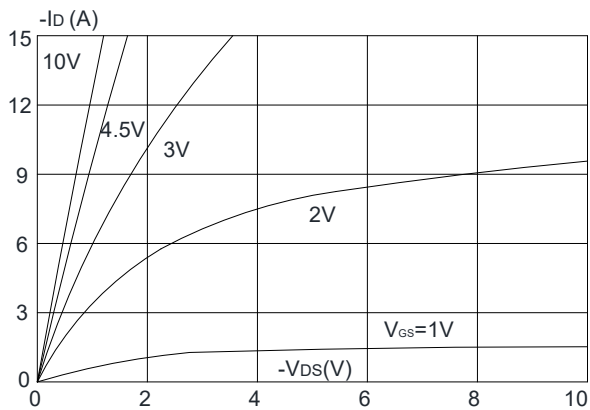


Figure1: Output Characteristics

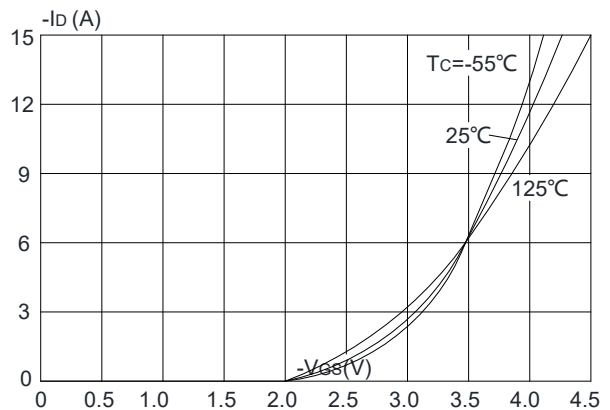


Figure 2: Typical Transfer Characteristics

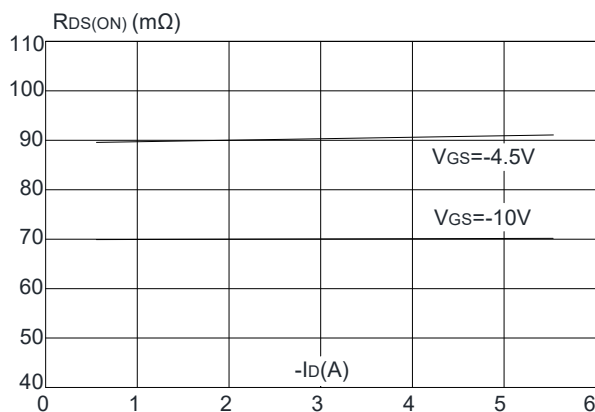


Figure 3: On-resistance vs. Drain Current

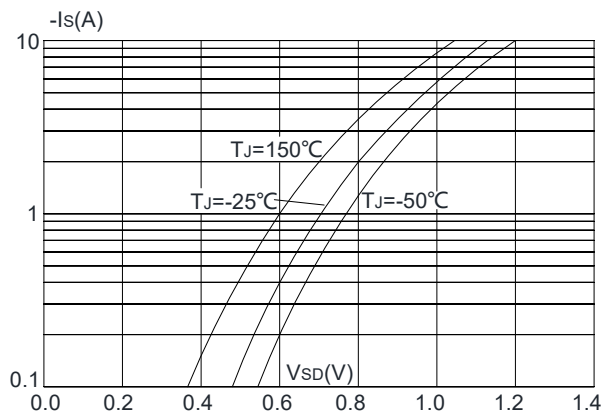


Figure 4: Body Diode Characteristics

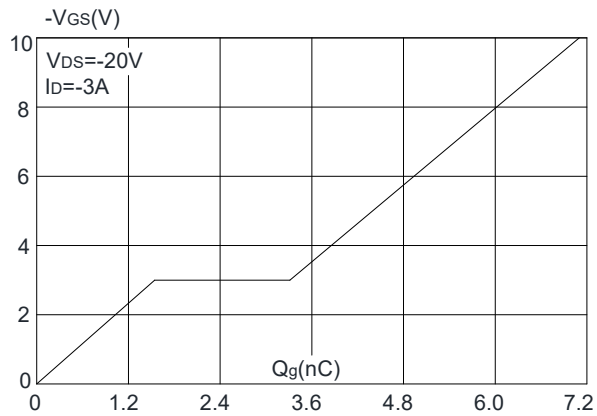


Figure 5: Gate Charge Characteristics

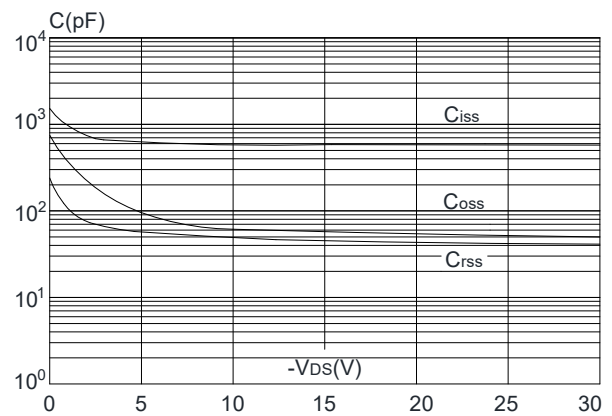


Figure 6: Capacitance Characteristics

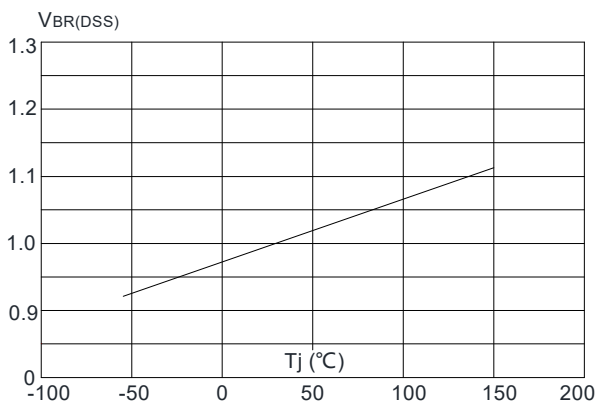


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

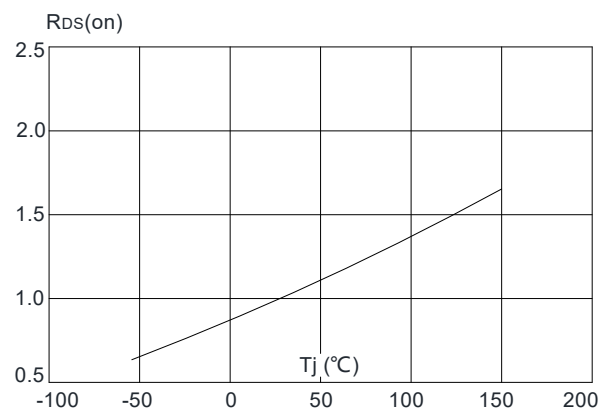


Figure 8: Normalized on Resistance vs. Junction Temperature

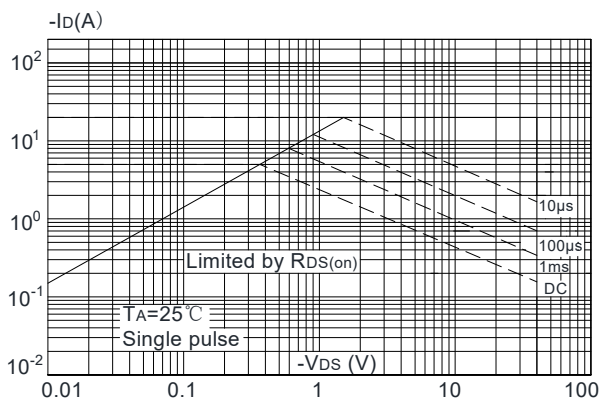


Figure 9: Maximum Safe Operating Area

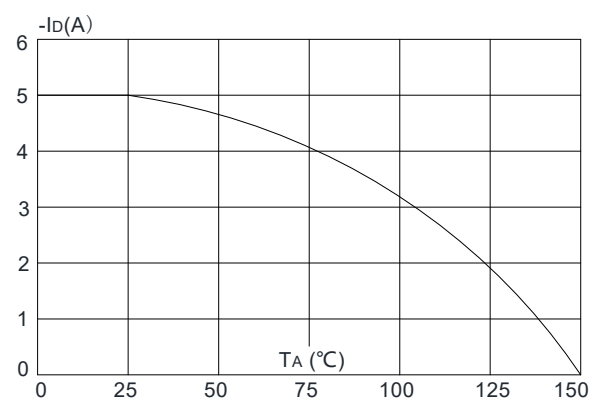


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

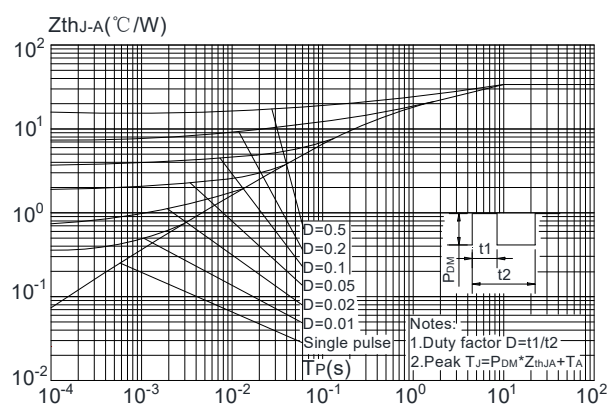


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient