SDM017P03QD

-30V Dual P-Channel MOSFETs

Rev A.0

Feature

- Excellent $R_{DS(ON)}$
- Low Gate Charge
- Advanced Trench Technology
- Green product (RoHS compliant), lead free
- 100% UIS Tested

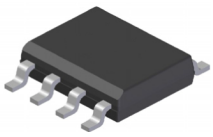
Product Summary

V_{DS}	-30	V
$V_{GS(th)\_Typ}$	-1.6	V
$R_{DS(ON)\_Typ}$ (at V_{GS} =-10V)	12.7	mΩ
I_D (at V_{GS} =-10V)	-11	A

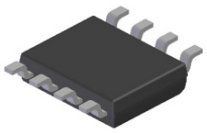
Type	Package	Marking	Outline	Media	Quantity (pcs)
SDM017P03QD	SOP-8	160P03D	Tape	13" Reel	4000

SOP-8

Top View

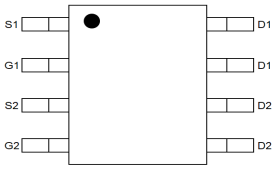


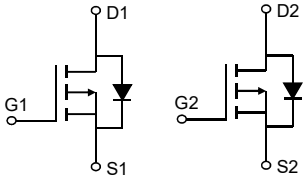
Bottom View



Pin Configuration

Top View





Chip-1 & Chip-2

Absolute Maximum Ratings (Rating at T_A=25°C unless otherwise noted)

Parameter		Symbol	Maximum	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_A=25°C	I_D	-11	A
	T_A=100°C		-7	
Pulsed Drain Current (1)		I_{DM}	-44	A
Maximum Body-Diode Continuous Current		I_S	-11	A
Avalanche Energy (2)		E_{AS}	68	mJ
Power Dissipation	T_A=25°C	P_D	3.6	W
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics (Rating at T_J=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
STATIC PARAMETERS						
BV_{DSS}	Drain-Source Breakdown Voltage	I_D=-250μA, V_{GS} =0V	-30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-30V, V_{GS} =0V	-	-	-1	μA
I_{GSS}	Gate-Body Leakage Current	V_{DS}=0V, V_{GS} =±20V	-	-	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}= V_{GS}, I_D=-250μA	-1.0	-1.6	-2.5	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance (3)	V_{GS}=-10V, I_D=-10A	-	12.7	17	mΩ
		V_{GS}=-4.5V, I_D=-5A	-	19	27	
V_{SD}	Diode Forward Voltage	I_S=-11A, V_{GS}=0V	-	-0.8	-1.2	V
DYNAMIC PARAMETERS						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=-15V, f=1MHz	-	2129	-	pF
C_{oss}	Output Capacitance		-	279	-	pF
C_{rss}	Reverse Transfer Capacitance		-	251	-	pF
SWITCHING PARAMETERS						
Q_g	Total Gate Charge	V_{GS}=-10V, V_{DS}=-15V, I_D=-5A	-	21	-	nC
Q_{gs}	Gate Source Charge		-	3.9	-	nC
Q_{gd}	Gate Drain Charge		-	5.7	-	nC
$t_{D(on)}$	Turn-On Delay Time	V_{GS}=-10V,V_{DD}=-15V,I_D=-10A, R_G=2.5Ω	-	8.9	-	ns
t_r	Turn-On Rise Time		-	11	-	ns
$t_{D(off)}$	Turn-Off Delay Time		-	47	-	ns
t_f	Turn-Off Fall Time		-	19	-	ns

Thermal Resistances

Symbol	Parameter	Typ	Max	Unit
$R_{\theta JA}$	Thermal resistance from junction to ambient	-	34.7	°C /W

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. E_{AS} condition: T_J=25℃, V_{DD}= -15V, V_G= -10V, R_G=25Ω, L=0.5mH, I_{AS}= -16.5A
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

Typical Electrical and Thermal Characteristics

Figure 1: Saturation Characteristics

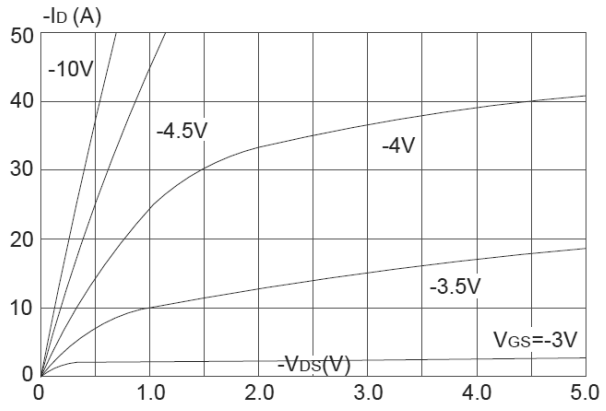


Figure 2: Transfer Characteristics

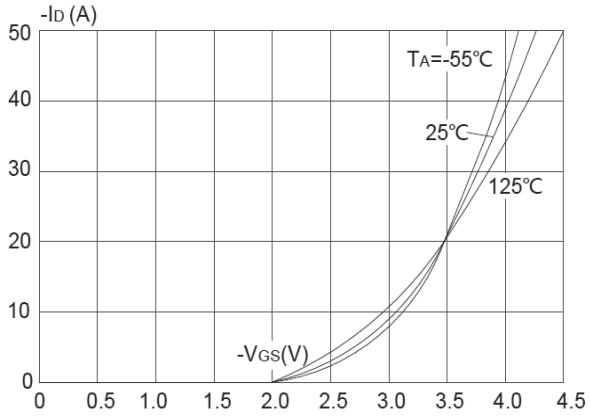


Figure 3: $R_{DS(ON)}$ vs. Drain Current

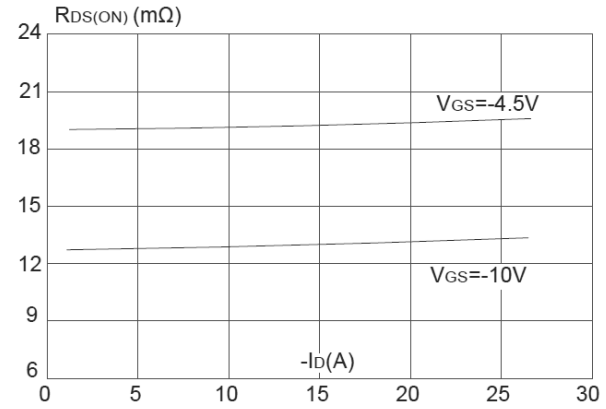


Figure 4: $R_{DS(ON)}$ vs. Junction Temperature

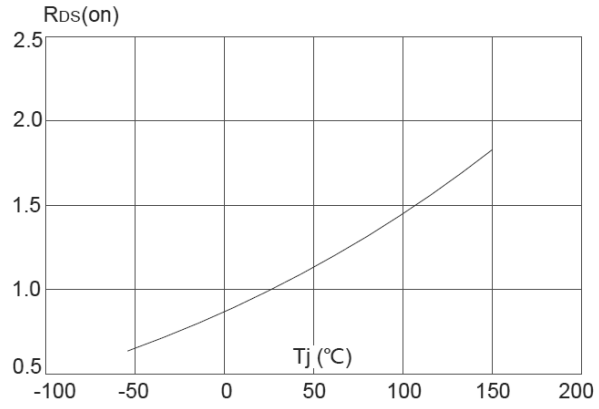


Figure 5: $V_{BR(DSS)}$ vs. Junction Temperature

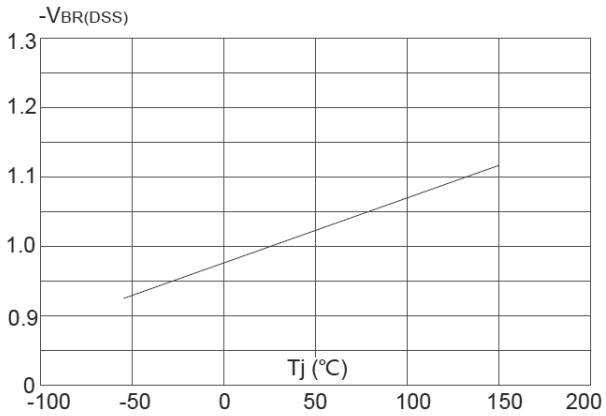
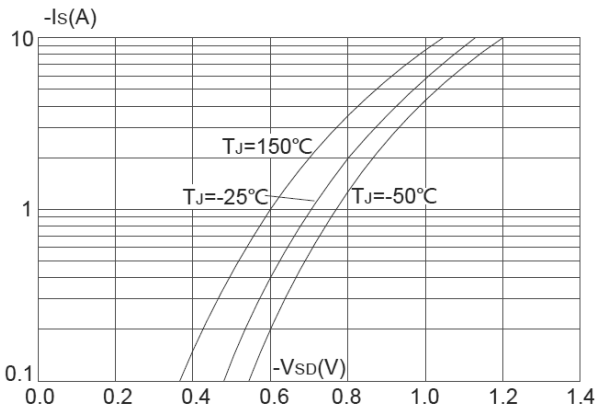


Figure 6: Body-Diode Characteristics



Typical Electrical and Thermal Characteristics

Figure 7: Gate-Charge characteristics

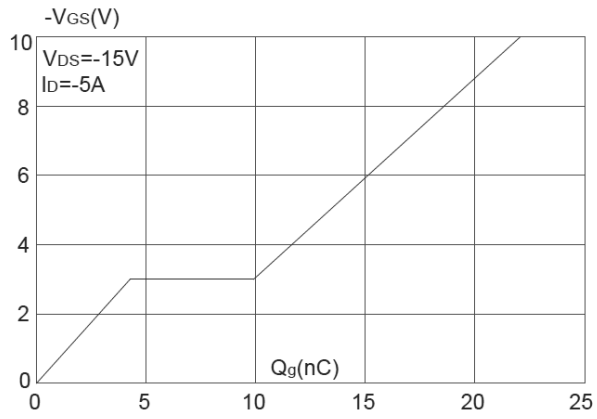


Figure 8: Capacitance characteristics

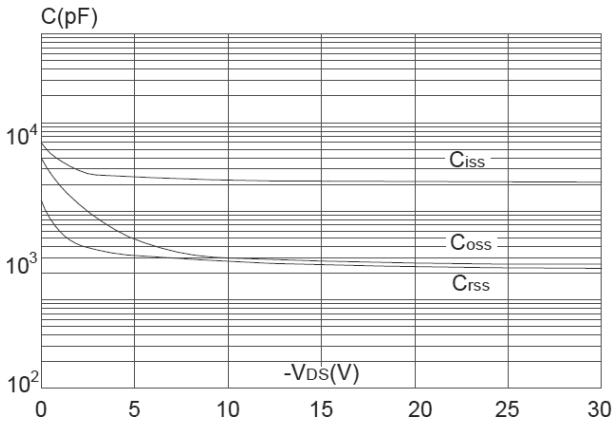


Figure 9: Current De-rating

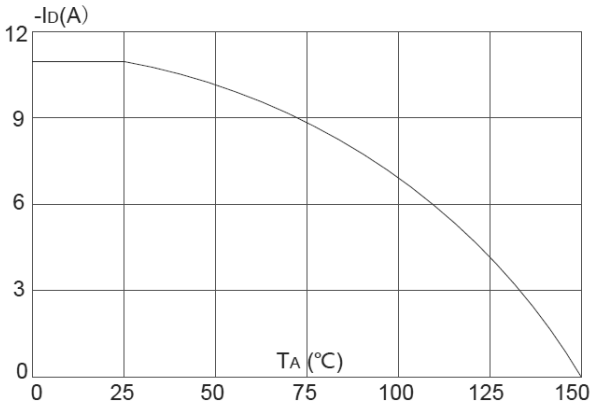


Figure 10: Maximum Safe Operating Area

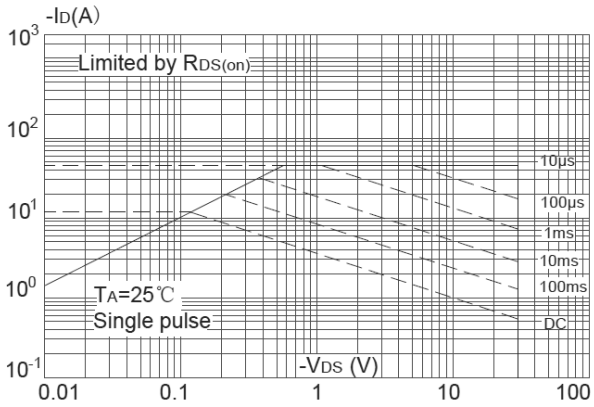
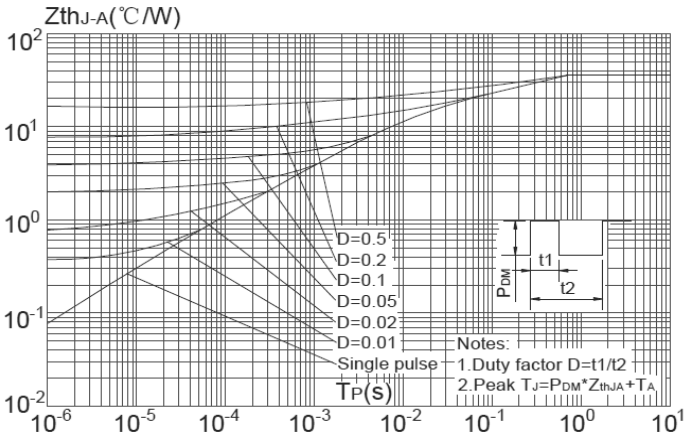


Figure 11: Normalized Maximum Transient Thermal Impedance



Test Circuit

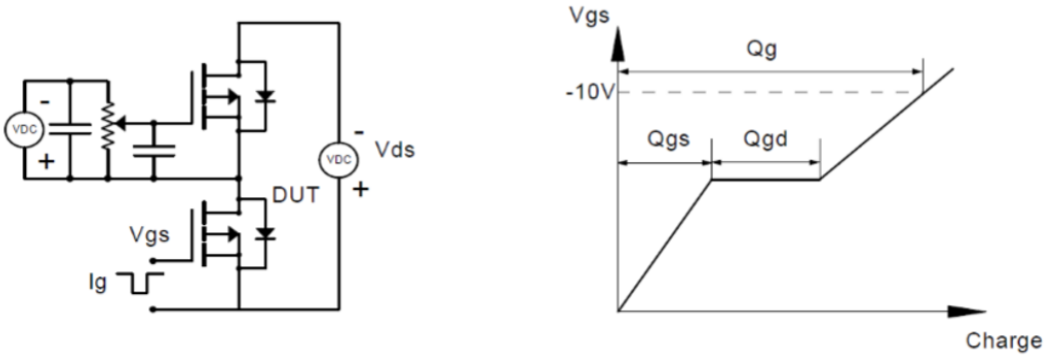


Figure1: Gate Charge Test Circuit & Waveforms

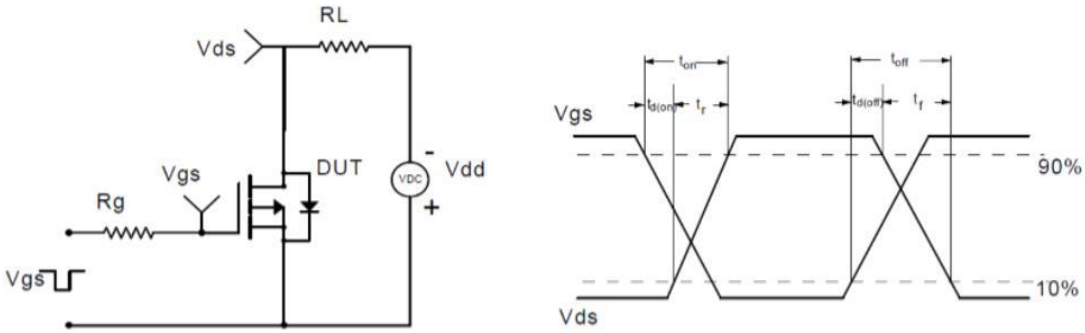


Figure2: Resistive Switching Test Circuit & Waveforms

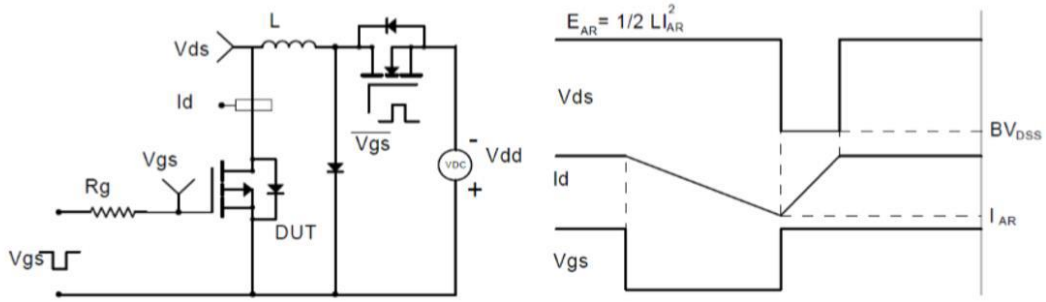


Figure3: Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

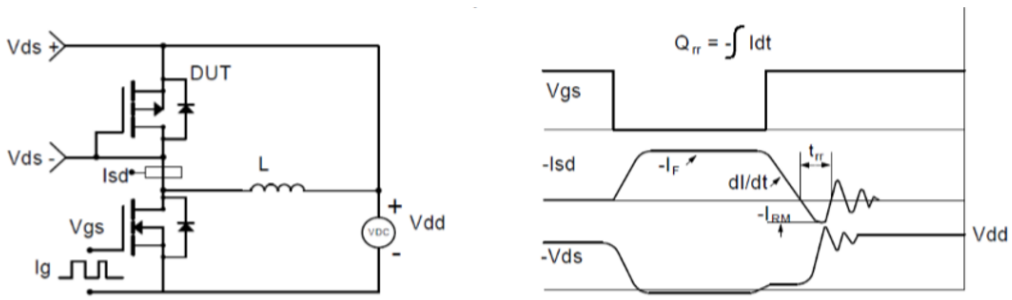


Figure4: Diode Recovery Test Circuit & Waveforms

SOP-8 Package Information