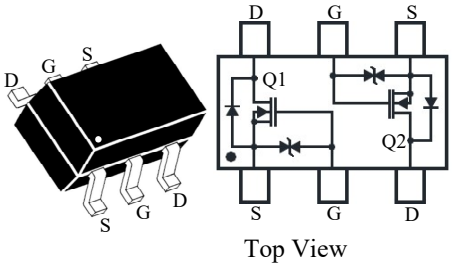
SM02ND175KDWH

Dual N-Channel Enhancement Mode Field Effect Transistors

FEATURES

· ESD protected gate

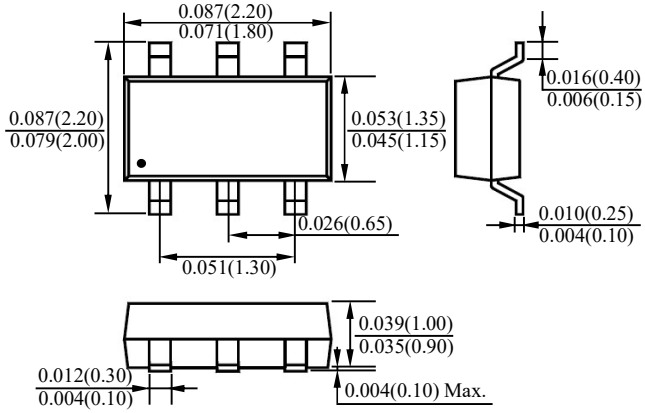
· Suffix "H" indicates Halogen-free parts, ex. SM02ND175KDWH



Top View

D	Drain
G	Gate
S	Source

SOT-363



Dimensions in inch and (millimeter)

Maximum Ratings(T_A=25 ℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	20	V
Gate-Source Voltage	V_{GSS}	±12	V
Continuous Drain Current	I_D	1.5	A
Peak Drain Current (Note 1)	I_{DM}	6	A
Power Dissipation (Note 2)	P_D	360	mW
Thermal Resistance from Juntion to Ambient (Note 2)	$R_{\theta JA}$	347	℃ / W
Operating and Storage Temperature Range	T_J ,T_{stg}	- 55 to + 150	℃

Note :

1. Pulse Test: pulse width ≤100μs, duty cycle ≤ 2%, Reptitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C.

2. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

Electrical Characteristics(T_A=25 ℃ unless otherwise specified)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Static						
Drain Source Breakdown Voltage	I_D=250μA	$V_{(BR)DSS}$	20	-	-	V
Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	$V_{GS(th)}$	0.4	-	1.0	V
Zero Gate Voltage Drain Current	V_{DS}=16V	I_{DSS}	-	-	1	μA
Gate-Body Leakage Current	V_{GS}=±10V	I_{GSS}	-	-	±10	μA
Drain-Source On-State Resistance	V_{GS}=4.5V, I_D=1.5A	$R_{DS(on)}$	-	-	175	mΩ
	V_{GS}=2.5V, I_D=1.0A		-	-	215	
	V_{GS}=1.8V, I_D=0.9A		-	-	270	
Dynamic						
Forward Transfer Admittance	V_{DS}=5V, I_D=1.2A	g_{FS}	-	3	-	S
Total Gate Charge	V_{DS}=15V, I_D=1.5A, V_{GS}=2.5V	Q_g	-	1.3	-	nC
	V_{DS}=15V, I_D=1.5A, V_{GS}=4.5V		-	2.5	-	
Gate-Source Charge		Q_{gs}	-	0.8	-	
Gate-Drain Charge		Q_{gd}	-	0.5	-	
Input Capacitance	V_{DS}=15V, V_{GS}=0V, f=1MHz	C_{iss}	-	180	-	pF
Output Capacitance		C_{oss}	-	18	-	
Reverse Transfer Capacitance		C_{rss}	-	16	-	
Turn-On Delay Time	V_{DS}=15V, V_{GS}=4.5V, I_D=1.5A, R_g=4.5Ω	$t_{d(on)}$	-	4.1	-	ns
Turn-On Rise Time		t_r	-	4.2	-	
Turn-Off Delay Time		$t_{d(off)}$	-	17.0	-	
Turn-Off Fall Time		t_f	-	5.3	-	
Drain-Source Body Diode						
Drain-Source Diode Forward Voltage	I_S=1A	V_{SD}	-	-	1.2	V
Diode Continuous Forward Current	-	I_S	-	-	1.5	A
Reverse Recovery Time	I_S=1.5A, di/dt=100A/μs	t_{rr}	-	5.6	-	ns
Reverse Recovery Charge		Q_{rr}	-	1.8	-	nC

RATINGS AND CHARACTERISTIC CURVES

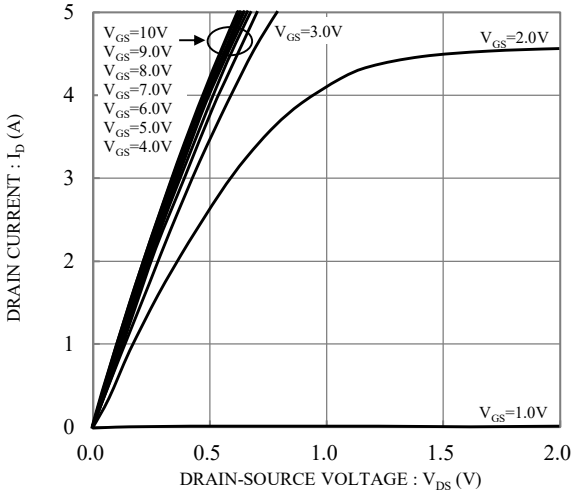


Fig.1 Typical Output Characteristics

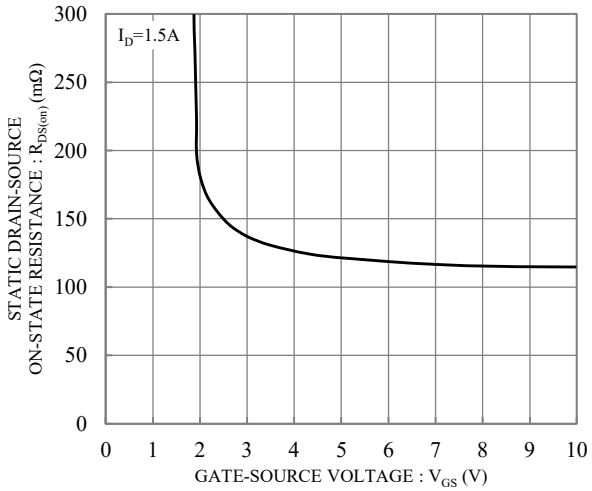


Fig.2 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

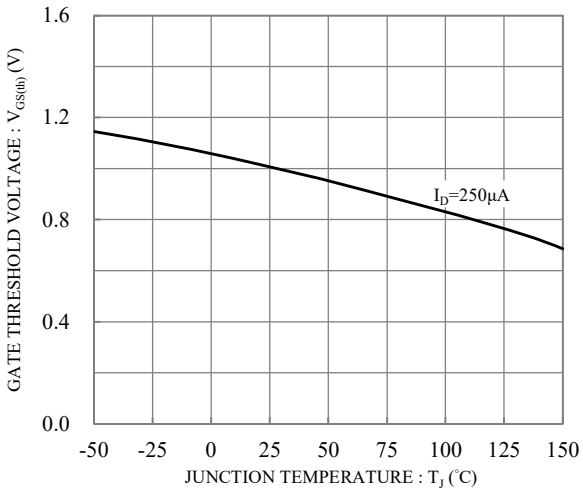


Fig.3 Gate Threshold Voltage vs. Junction Temperature

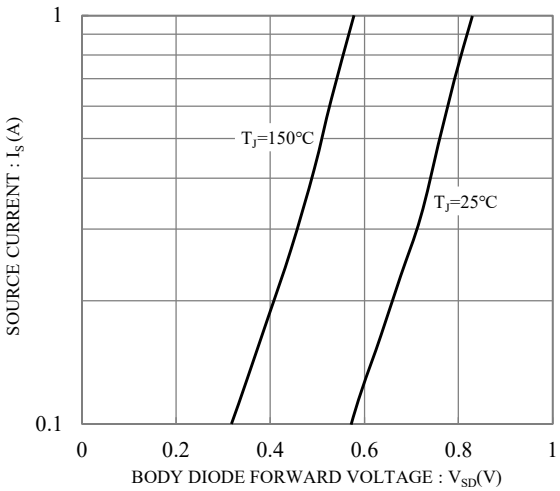


Fig.4 Body Diode Forward Voltage vs. Source Current

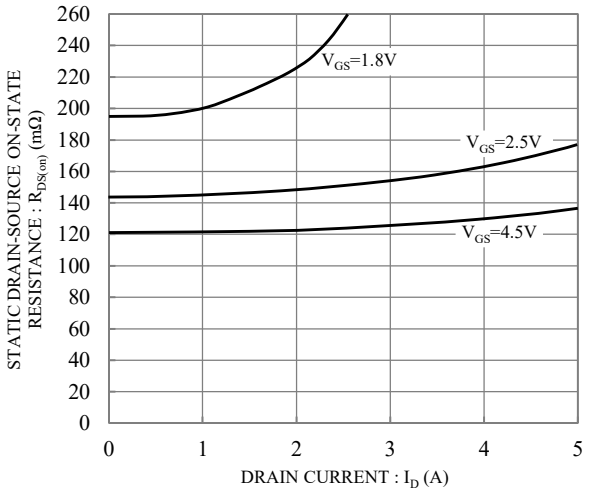


Fig.5 Static Drain-Source On-State Resistance vs. Drain Current

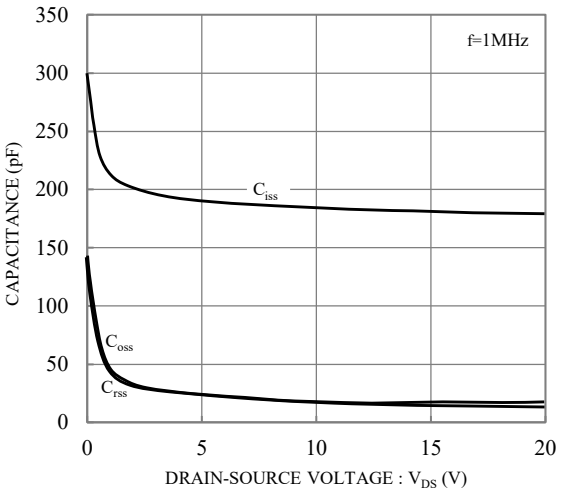


Fig.6 Capacitance vs. Drain-Source Voltage

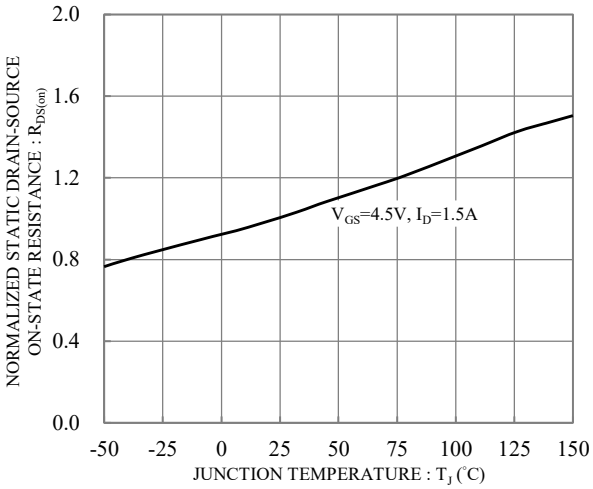


Fig.7 Drain-Source On-State Resistance vs. Junction Tempearture

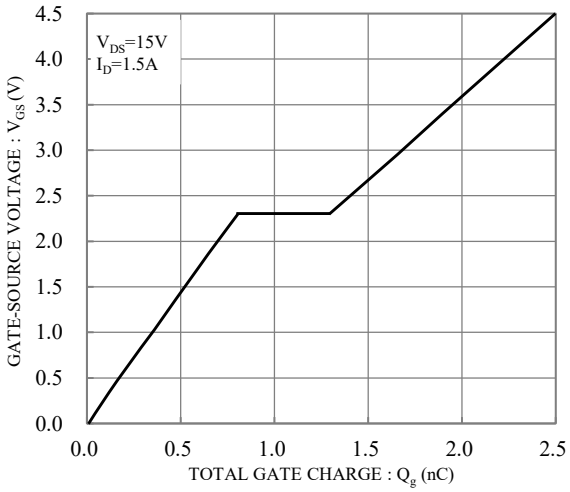
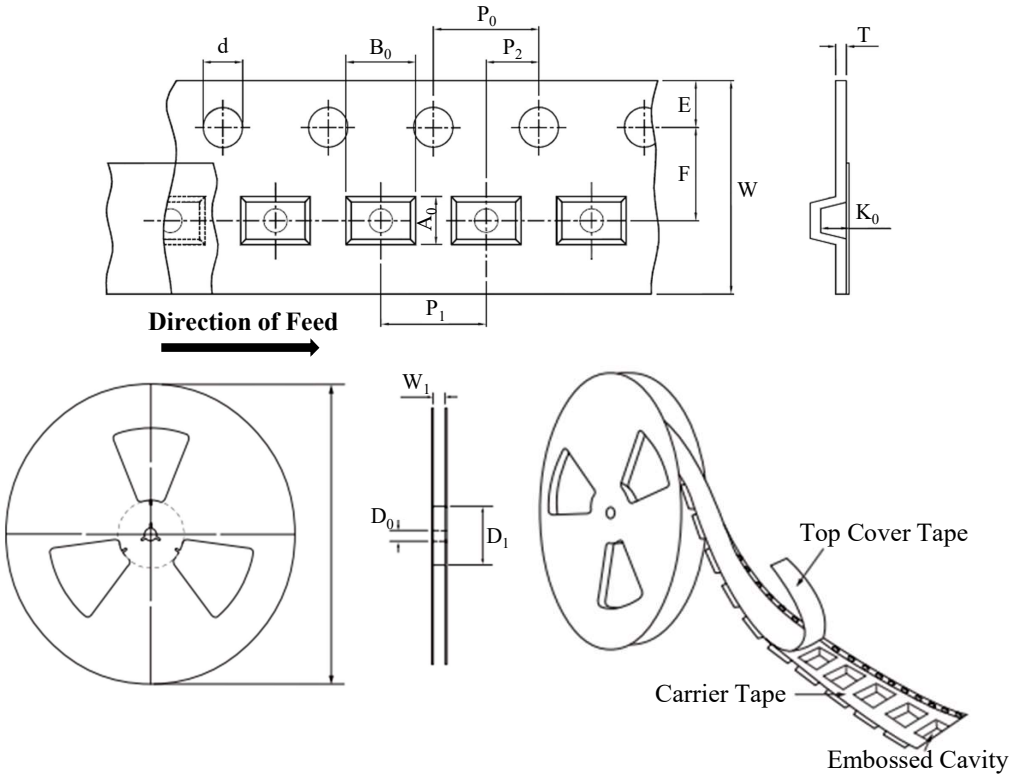


Fig.8 Gate Charge Characteristics

TAPE & REEL SPECIFICATION



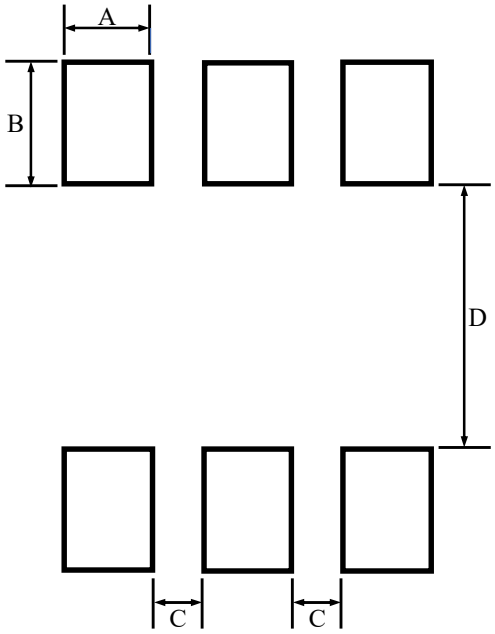
Item	Symbol	SOT-363
Carrier width	A_0	Note *
Carrier length	B_0	
Carrier depth	K_0	
Sprocket hole	d	1.50 ± 0.10
Reel outside diameter	D	178.00 ± 2.00
Feed hole width	D_0	13.00 ± 0.50
Reel inner diameter	D_1	MIN. 54.00
Sprocke hole position	E	1.75 ± 0.10
Punch hole position	F	3.50 ± 0.10
Sprocke hole pitch	P_0	4.00 ± 0.10
Punch hole pitch	P_1	4.00 ± 0.10
Embossment center	P_2	2.00 ± 0.10
Overall tape thickness	T	MAX. 0.60
Tape width	W	MAX. 8.30
Reel width	W1	8.40 ± 1.50

Note *: A_0, B_0, and K_0 are determined by component size. The clearance between the components and the cavity must be within 0.05 mm min. to 0.5 mm max.

ORDER INFORMATION

Part Number	Marking Code	Reel Size	Quantity
SM02ND175KDWH	QD	7"	3,000

SUGGESTED SOLDER PAD LAYOUT



Unit :mm

PACKAGE	A	B	C	D
SOT-363	0.42	0.60	0.23	1.30