

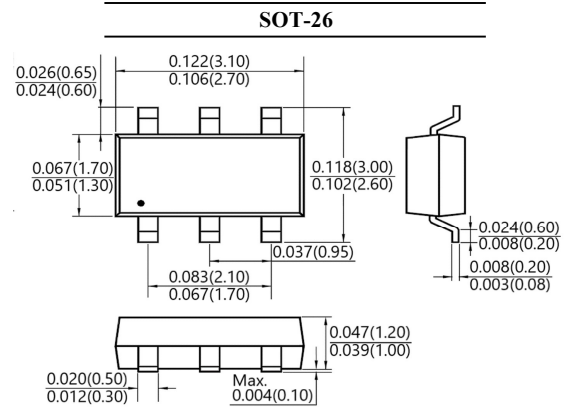
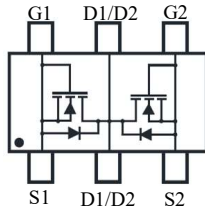
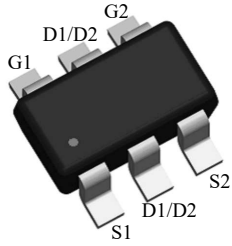


# SM8205PTDH

## Dual N-Channel Enhancement Mode Field Effect Transistor

### FEATURES

- Low on-resistance
- Low drive current
- Suffix "H" indicates Halogen-free parts, ex. SM8205PTDH



Dimensions in inch and (millimeter)

### Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DSS}$	20	V
Gate-Source Voltage	$V_{GSS}$	$\pm 8$	V
Drain Current	$I_D$	6	A
Pulsed Drain Current (Note 1)	$I_{DM}$	30	A
Power Dissipation	$P_D$	0.96	W
Thermal Resistance from Junction to Ambient (Note 2)	$R_{\theta JA}$	130	$^\circ\text{C} / \text{W}$
Operating and Storage Temperature Range	$T_J, T_{stg}$	- 55 to + 150	$^\circ\text{C}$

Note:

1. Pulse width  $\leq 100\mu\text{s}$ , Duty cycle  $\leq 2\%$ , Repetitive rating, pulse width limited by junction temperature  $T_{J(MAX)} = 150^\circ\text{C}$
2. Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate in still air.



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### Electrical Characteristics ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise specified)

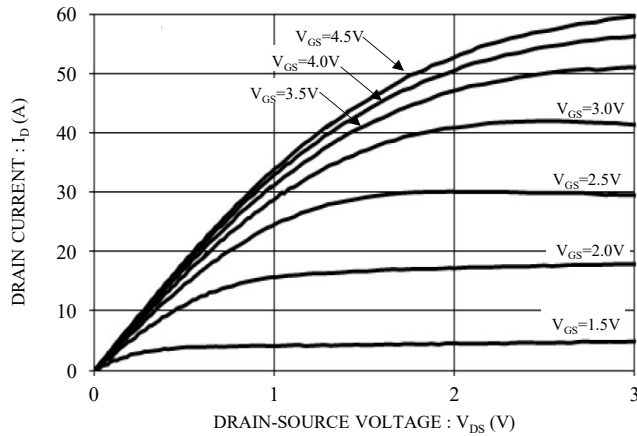
Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
<b>Static</b>						
Drain Source Breakdown Voltage	$I_D = 250\mu\text{A}$	$BV_{DSS}$	20	-	-	V
Zero Gate Voltage Drain Current	$V_{DS} = 20\text{V}$	$I_{DSS}$	-	-	1	$\mu\text{A}$
Gate Source Leakage Current	$V_{GS} = \pm 8\text{V}$	$I_{GSS}$	-	-	$\pm 100$	nA
Gate Threshold Voltage	$V_{GS} = V_{DS}, I_D = 250\mu\text{A}$	$V_{GS(th)}$	0.5	-	1.1	V
Static Drain Source On-Resistance	$V_{GS} = 4.5\text{V}, I_D = 4.2\text{A}$	$R_{DS(on)}$	-	-	26	m $\Omega$
	$V_{GS} = 2.5\text{V}, I_D = 3\text{A}$		-	-	32	
Forward Transconductance	$V_{DS} = 4.5\text{V}, I_D = 4.2\text{A}$	$g_{FS}$	-	11	-	S
<b>Dynamic</b>						
Gate Resistance	$V_{DS} = 0, f = 1\text{MHz}$	$R_g$	-	3.5	-	$\Omega$
Total Gate Charge	$V_{DS} = 10\text{V}, I_D = 6.8\text{A}, V_{GS} = 2.5\text{V}$	$Q_g$	-	2.8	-	nC
			-	5.2	-	
Gate-Source Charge	$V_{DS} = 10\text{V}, I_D = 6.8\text{A}, V_{GS} = 4.5\text{V}$	$Q_{gs}$	-	1.3	-	
Gate-Drain Charge		$Q_{gd}$	-	1.0	-	
Input Capacitance	$V_{GS} = 0\text{V}, V_{DS} = 10\text{V}, f = 1\text{MHz}$	$C_{iss}$	-	472	-	pF
Output Capacitance		$C_{oss}$	-	64	-	
Reverse Transfer Capacitance		$C_{rss}$	-	35	-	
Turn on Delay Time	$V_{DS} = 10\text{V}, I_D = 6\text{A}, V_{GS} = 4.5\text{V}, R_g = 6\Omega$	$t_{d(on)}$	-	11.0	-	ns
Turn on Rise Time		$t_r$	-	4.0	-	
Turn off Delay Time		$t_{d(off)}$	-	14.0	-	
Turn off Fall Time		$t_f$	-	4.2	-	
<b>Drain-Source Body Diode</b>						
Diode Forward Voltage	$I_S = 1\text{A}, V_{GS} = 0\text{V}$	$V_{SD}$	-	-	1.1	V
Reverse Recovery Time	$I_S = 6\text{A}, di/dt = 100\text{A}/\mu\text{s}$	$t_{rr}$	-	5	-	ns
Reverse Recovery Charge		$Q_{rr}$	-	1	-	nC



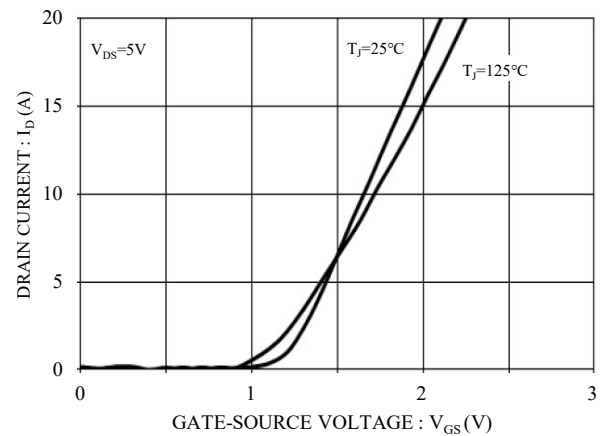
# SM8205PTDH

## Dual N-Channel Enhancement Mode Field Effect Transistor

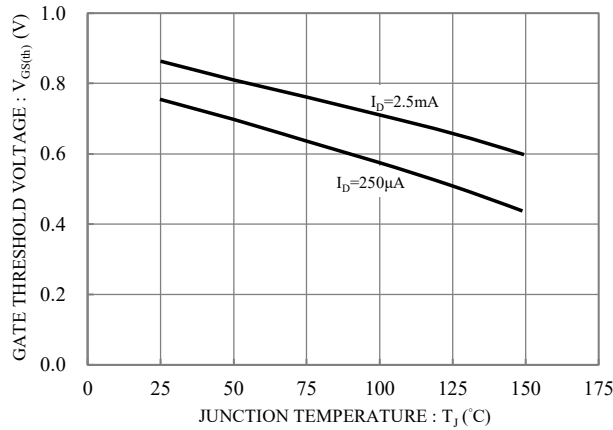
### RATINGS AND CHARACTERISTIC CURVES



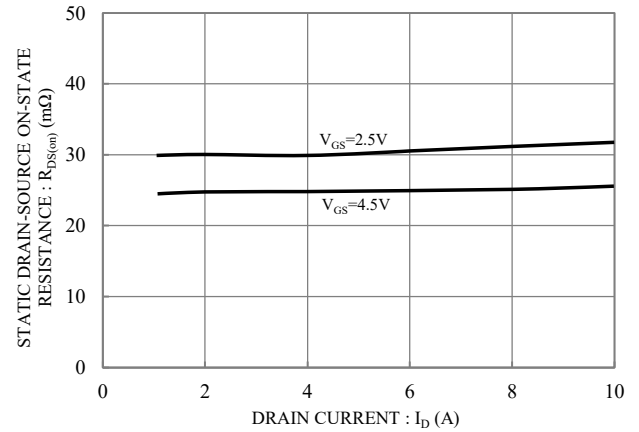
**Fig.1 Typical Output Characteristics**



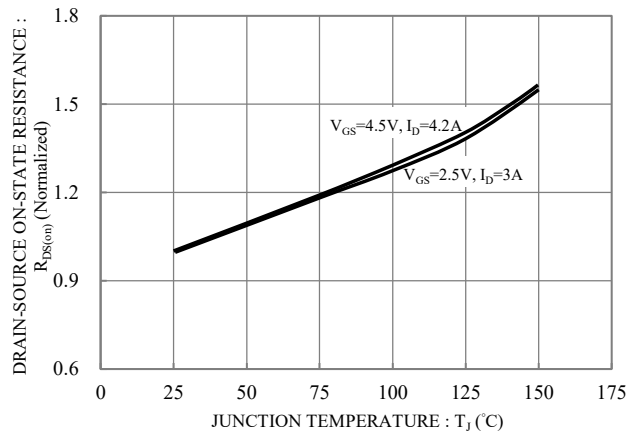
**Fig.2 Typical Transfer Characteristics**



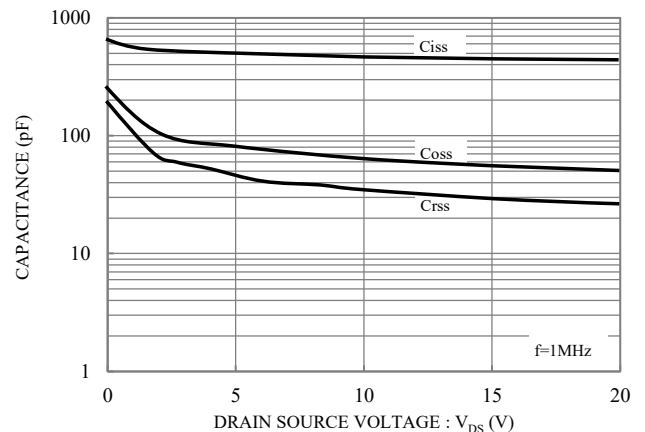
**Fig.3 Gate Threshold Voltage vs. Junction Temperature**



**Fig.4 Static Drain-Source On-State Resistance vs. Drain Current**



**Fig.5 Static Drain-Source On-State Resistance vs. Junction Temperature**



**Fig.6 Capacitance vs Drain-to-Source Voltage**



# SM8205PTDH

## Dual N-Channel Enhancement Mode Field Effect Transistor

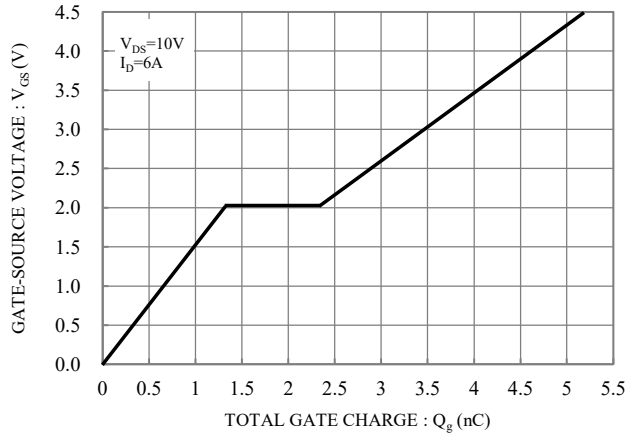


Fig.7 Gate Charge Characteristics

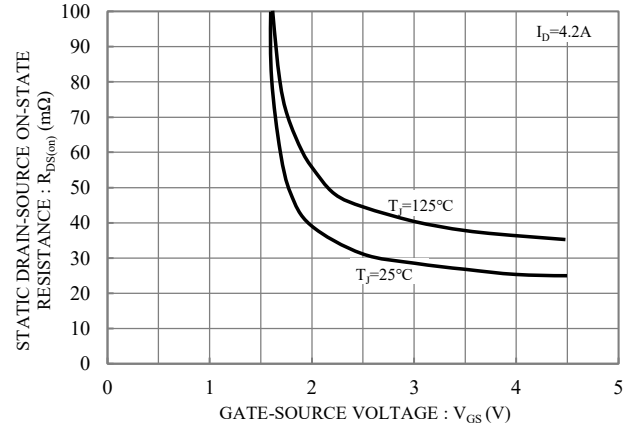


Fig.8 Static Drain-Source On-State Resistance vs Gate-Source Voltage

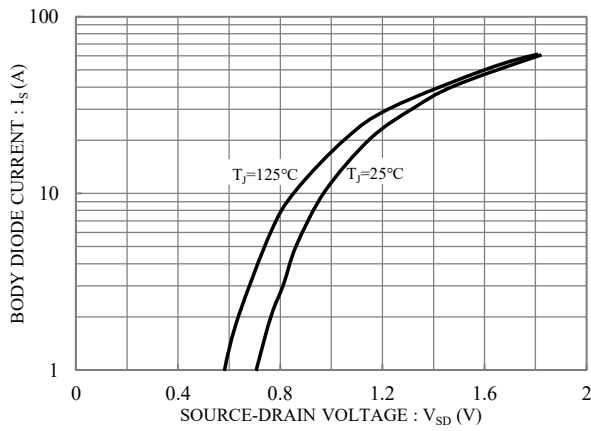


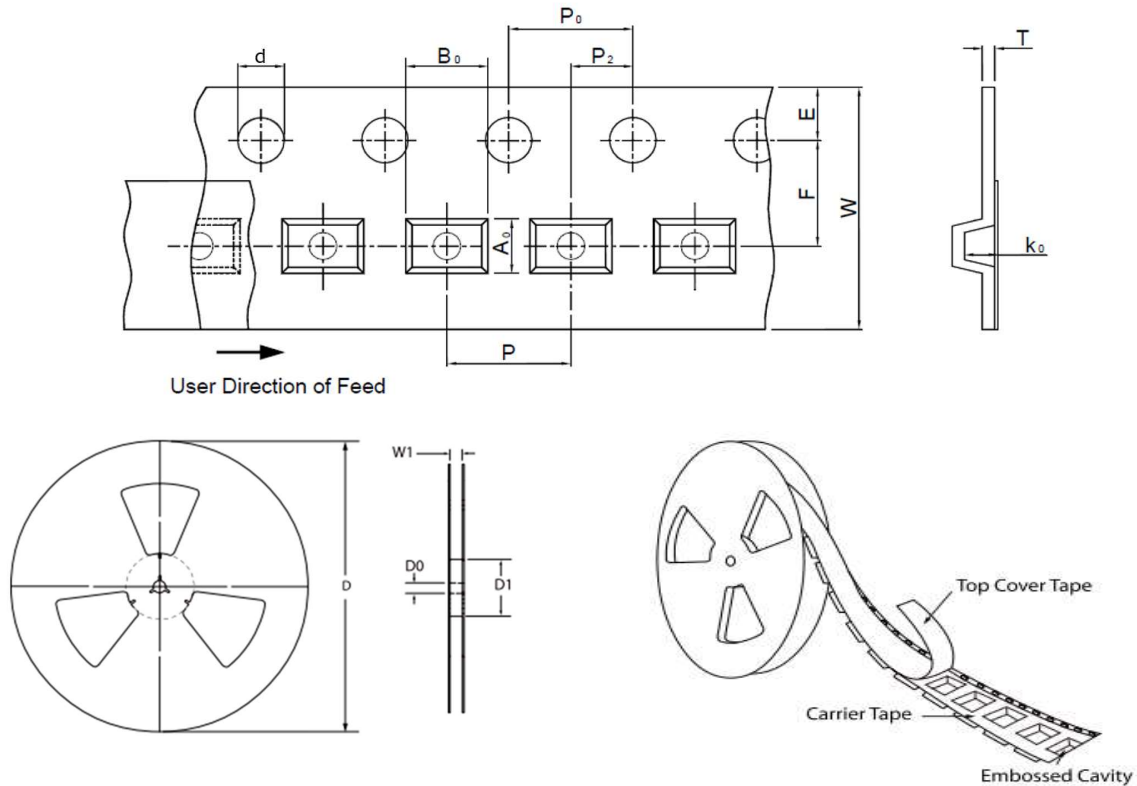
Fig.9 Source-Drain Voltage vs Body Diode Current



# SM8205PTDH

Dual N-Channel Enhancement Mode Field Effect Transistor

## TAPE & REEL SPECIFICATION



Item	Symbol	SOT-26
Carrier width	A <sub>0</sub>	3.35 ± 0.10
Carrier length	B <sub>0</sub>	3.35 ± 0.10
Carrier depth	K <sub>0</sub>	1.50 ± 0.10
Sprocket hole	d	1.50 ± 0.10
Reel outside diameter	D	178.00 ± 2.00
Feed hole width	D <sub>0</sub>	13.00 ± 0.50
Reel inner diameter	D <sub>1</sub>	MIN. 50.00
Sprocket hole position	E	1.75 ± 0.10
Punch hole position	F	3.50 ± 0.10
Sprocket hole pitch	P <sub>0</sub>	4.00 ± 0.10
Punch hole pitch	P <sub>1</sub>	4.00 ± 0.10
Embossment center	P <sub>2</sub>	2.00 ± 0.10
Overall tape thickness	T	0.60 ± 0.10
Tape width	W	8.00 ± 0.30
Reel width	W1	MAX. 10.00

## ORDER INFORMATION

Package	Reel Size	Quantity
SOT-26	7"	3,000

## MARKING CODE

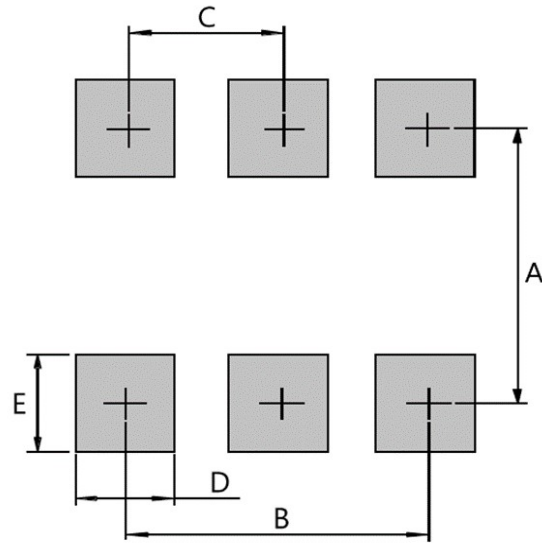
Part Number	Marking Code
SM8205PTDH	NW



# SM8205PTDH

Dual N-Channel Enhancement Mode Field Effect Transistor

## SUGGESTED SOLDER PAD LAYOUT



Unit : mm

PACKAGE	A	B	C	D	E
SOT-26	2.40	1.90	0.95	0.70	1.00