

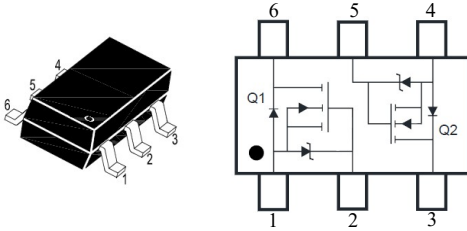


SM2NWE4KDW H

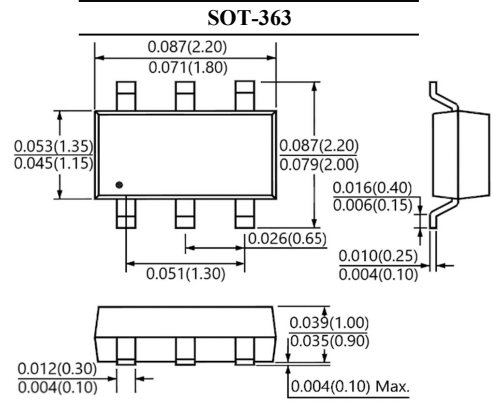
Dual N-Channel Enhancement Mode Field Effect Transistor

FEATURES

- ESD Protected
- Suffix "H" indicates Halogen-free parts, ex. SM2NWE4KDW H



Q1: 1.Source 2.Gate 6.Drain
Q2: 4.Source 5.Gate 3.Drain



Dimensions in inch and (millimeter)

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	25	V
Gate-Source Voltage	V_{GS}	8	V
Continuous Drain Current	I_D	220	mA
Pulsed Drain Current (Note 1)	I_{DM}	1.2	A
Power Dissipation	P_D	300	mW
Thermal Resistance, Junction to Ambient (Note 2)	$R_{\theta JA}$	415	$^\circ\text{C} / \text{W}$
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 $T_{J(\text{MAX})} = 150^\circ\text{C}$
2. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout



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

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Static						
Drain Source Breakdown Voltage	$I_D = 250\mu\text{A}$	BV_{DSS}	25	-	-	V
Zero Gate Voltage Drain Current	$V_{DS} = 20\text{V}$	I_{DSS}	-	-	1	μA
Gate Source Leakage Current	$V_{GS} = 8\text{V}$	I_{GSS}	-	-	± 0.1	μA
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	$V_{GS(th)}$	0.65	-	1.50	V
Static Drain Source On-Resistance	$V_{GS} = 4.5\text{V}, I_D = 220\text{mA}$	$R_{DS(on)}$	-	-	4	Ω
	$V_{GS} = 2.7\text{V}, I_D = 190\text{mA}$		-	-	5	
Forward Transconductance	$V_{DS} = 5\text{V}, I_D = 0.4\text{A}$	g_{FS}	-	760	-	mS
Dynamic						
Gate Resistance	$V_{DS} = 0\text{V}, f = 1\text{MHz}$	R_g	-	38	-	Ω
Total Gate Charge	$V_{DS} = 10\text{V}, V_{GS} = 4.5\text{V}, I_D = 0.5\text{A}$	Q_g	-	0.280	-	nC
Gate-Source Charge		Q_{gs}	-	0.082	-	
Gate-Drain Charge		Q_{gd}	-	0.201	-	
Input Capacitance	$V_{DS} = 10\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$	C_{iss}	-	51	-	pF
Output Capacitance		C_{oss}	-	11	-	
Reverse Transfer Capacitance		C_{rss}	-	8	-	
Turn-On Delay Time	$V_{GS} = 4.5\text{V}, V_{DD} = 10\text{V},$ $I_D = 1\text{A}, R_{gen} = 51\Omega$	$t_{d(on)}$	-	13.0	-	ns
Turn-On Rise Time		t_r	-	13.0	-	
Turn-Off Delay Time		$t_{d(off)}$	-	7.7	-	
Turn-Off Fall Time		t_f	-	4.6	-	
Drain-Source Body Diode						
Drain-Source Diode Forward Voltage	$I_S = 0.25\text{A}, V_{GS} = 0\text{V}$	V_{SD}	-	-	1.2	V



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RATINGS AND CHARACTERISTIC CURVES

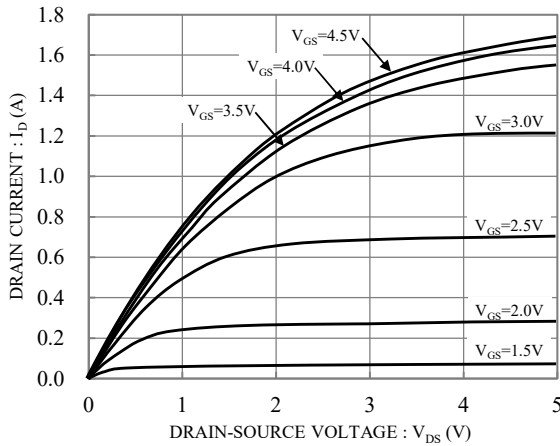


Fig.1 Typical Output Characteristics

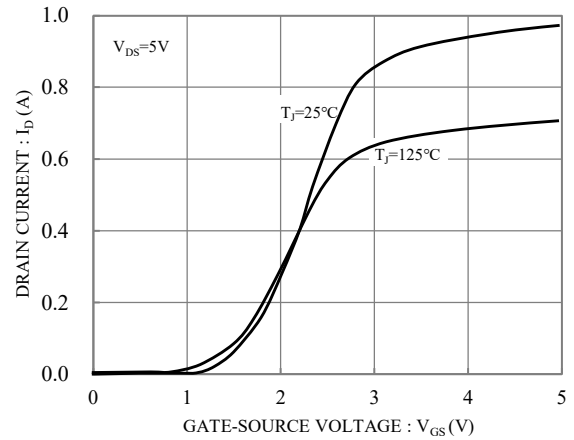


Fig.2 Typical Transfer Characteristics

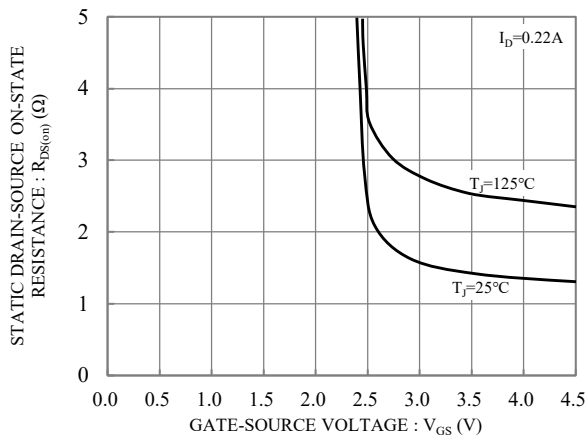


Fig.3 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

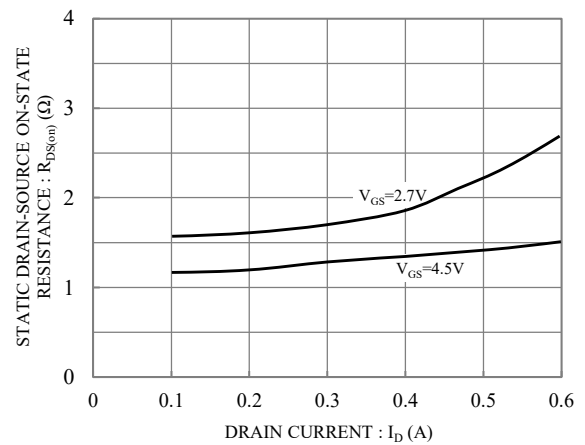


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current

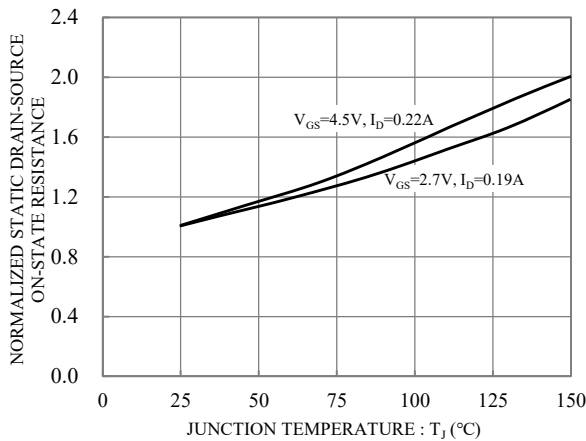


Fig.5 Normalized Static Drain-Source On-state Resistance vs. Junction Temperature

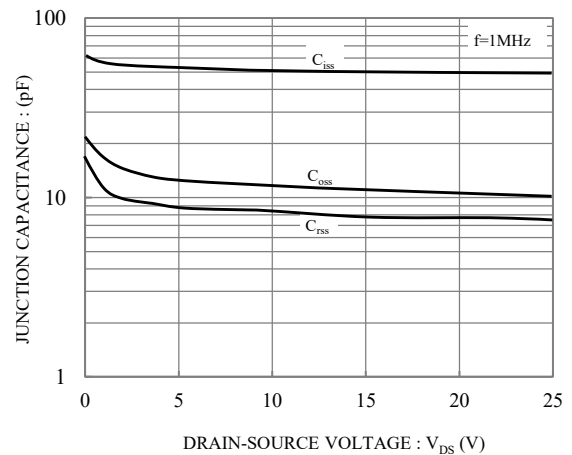


Fig.6 Capacitance vs. Drain-Source Voltage



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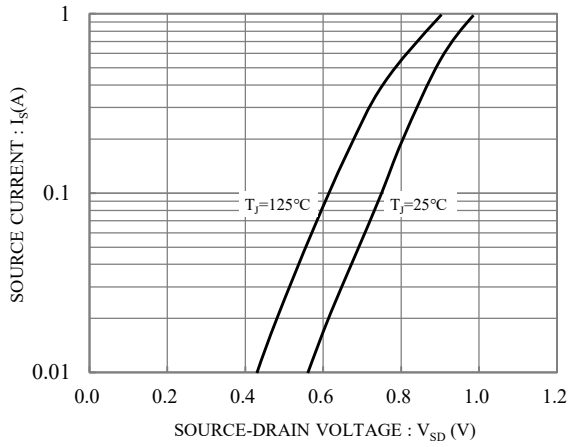


Fig.7 Diode Forward Voltage vs. Source Current

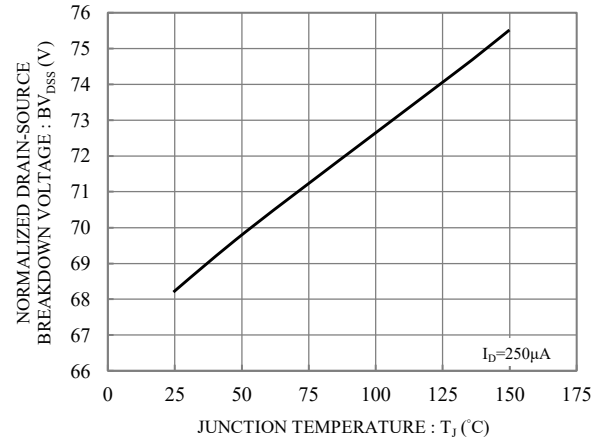


Fig.8 Breakdown Voltage vs Junction Temperature

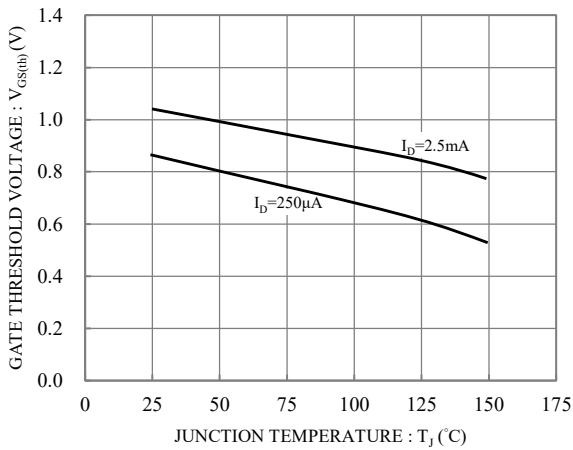


Fig.9 Gate Threshold Voltage vs. Junction Temperature

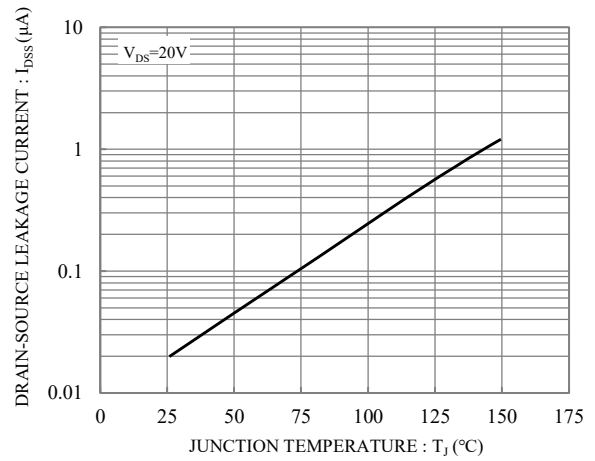


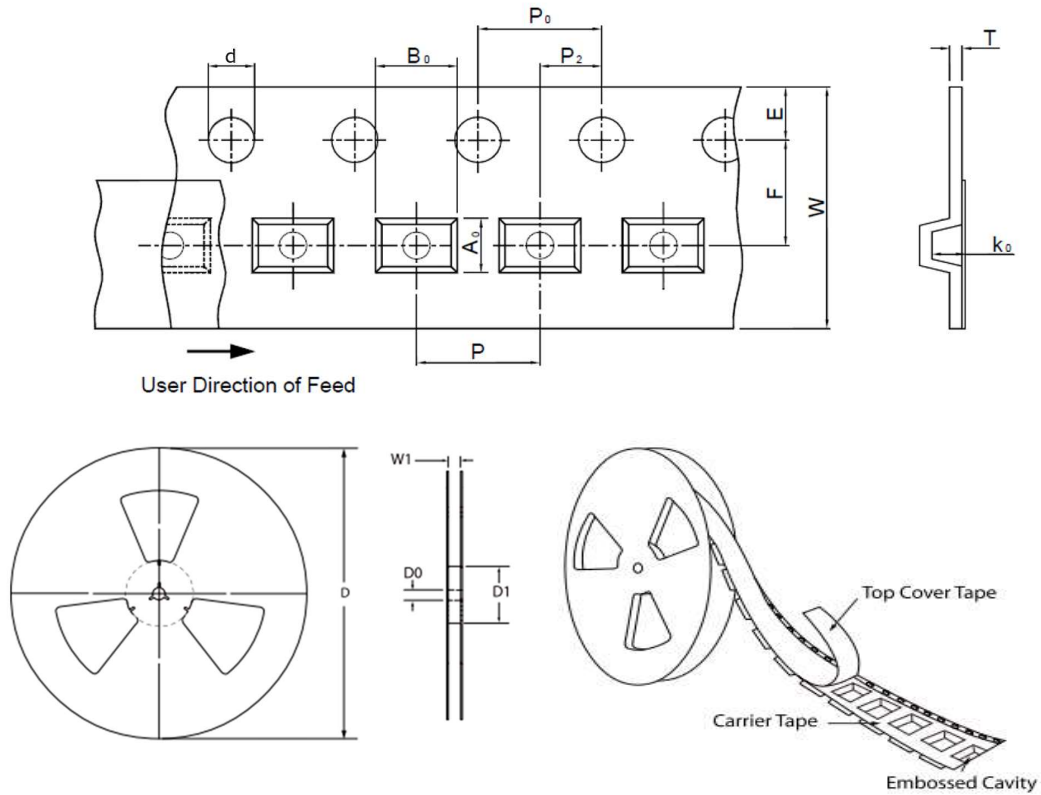
Fig.10 Drain-Source Leakage Current vs Junction Temperature



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TAPE & REEL SPECIFICATION



Item	Symbol	SOT-363
Carrier width	A ₀	2.30 ± 0.10
Carrier length	B ₀	2.30 ± 0.10
Carrier depth	K ₀	1.20 ± 0.10
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. 50.00
Sprocket hole position	E	1.75 ± 0.10
Punch hole position	F	3.50 ± 0.10
Sprocket 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	0.60 ± 0.10
Tape width	W	8.00 ± 0.30
Reel width	W1	MAX. 10.00

ORDER INFORMATION

Package	Reel Size	Quantity
SOT-363	7"	3,000

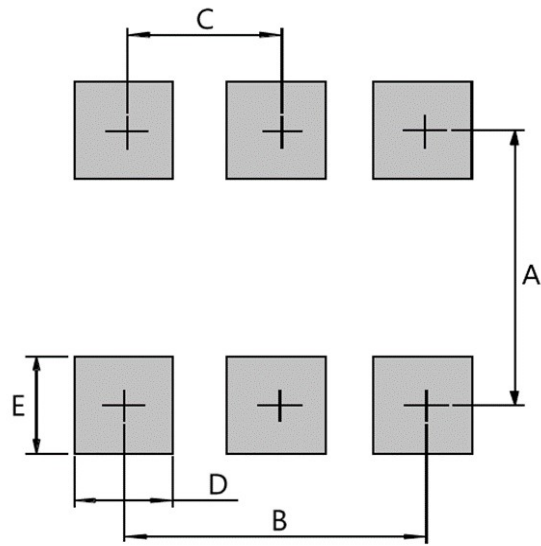
MARKING CODE

Part Number	Marking Code
SM2NWE4KDWH	MV



SM2NWE4KDW

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Unit : mm

PACKAGE	A	B	C	D	E
SOT-363	1.90	1.30	0.65	0.42	0.60