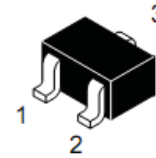
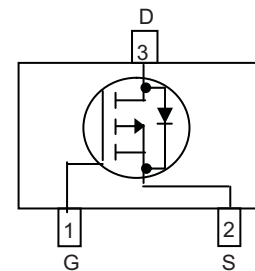
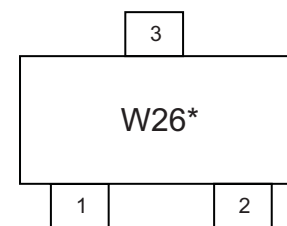


WPM2026
Single P-Channel, -20V, -3.2A, Power MOSFET
[Http://www.sh-willsemi.com](http://www.sh-willsemi.com)

V_{DS} (V)	$R_{ds(on)}$ (Ω)
-20	0.056@ $V_{GS} = -4.5V$
	0.069@ $V_{GS} = -2.5V$
	0.086@ $V_{GS} = -1.8V$


SOT-23
Descriptions

The WPM2026 is P-Channel enhancement MOS Field Effect Transistor. Uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit. Standard Product WPM2026 is Pb-free and Halogen-free.


Pin configuration (Top view)


W26= Device Code

* = Month (A~Z)

Marking
Applications

- Driver for Relay, Solenoid, Motor, LED etc.
- DC-DC converter circuit
- Power Switch
- Load Switch
- Charging

Order information

Device	Package	Shipping
WPM2026-3/TR	SOT-23	3000/Reel&Tape

Absolute Maximum ratings

Parameter		Symbol	10 S	Steady State	Unit
Drain-Source Voltage		V _{DS}	-20		V
Gate-Source Voltage		V _{GS}	±12		
Continuous Drain Current ^a	T _A =25°C	I _D	-3.2	-2.9	A
	T _A =70°C		-2.6	-2.3	
Maximum Power Dissipation ^a	T _A =25°C	P _D	0.9	0.8	W
	T _A =70°C		0.6	0.5	
Continuous Drain Current ^b	T _A =25°C	I _D	-2.9	-2.7	A
	T _A =70°C		-2.3	-2.1	
Maximum Power Dissipation ^b	T _A =25°C	P _D	0.7	0.6	W
	T _A =70°C		0.5	0.4	
Pulsed Drain Current ^c		I _{DM}	-12		A
Operating Junction Temperature		T _J	150		°C
Lead Temperature		T _L	260		°C
Storage Temperature Range		T _{stg}	-55 to 150		°C

Thermal resistance ratings

Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance ^a	$t \leq 10 \text{ s}$	$R_{\theta JA}$	105	130	$^{\circ}\text{C/W}$
	Steady State		120	155	
Junction-to-Ambient Thermal Resistance ^b	$t \leq 10 \text{ s}$	$R_{\theta JA}$	130	160	
	Steady State		145	190	
Junction-to-Case Thermal Resistance		$R_{\theta JC}$	40	60	

a Surface mounted on FR4 Board using 1 square inch pad size, 1oz copper

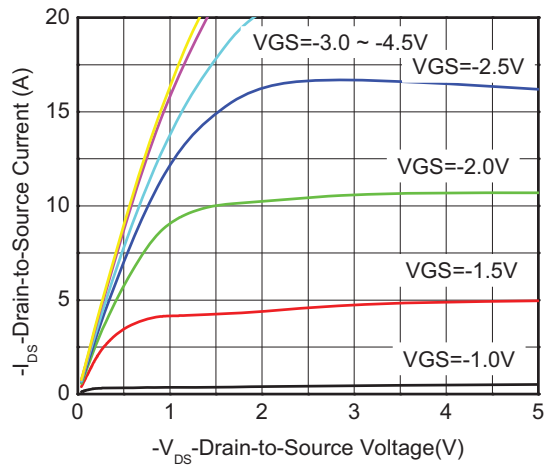
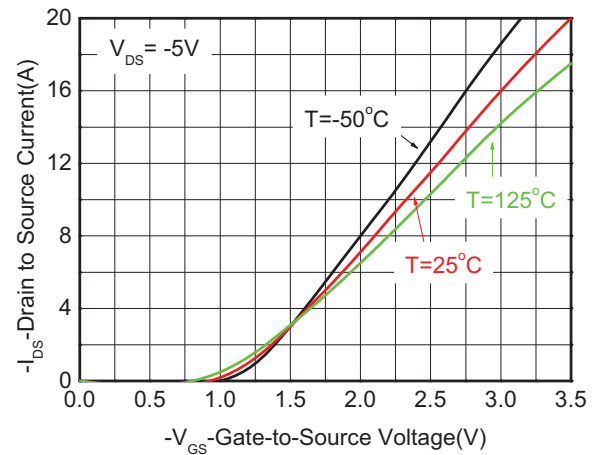
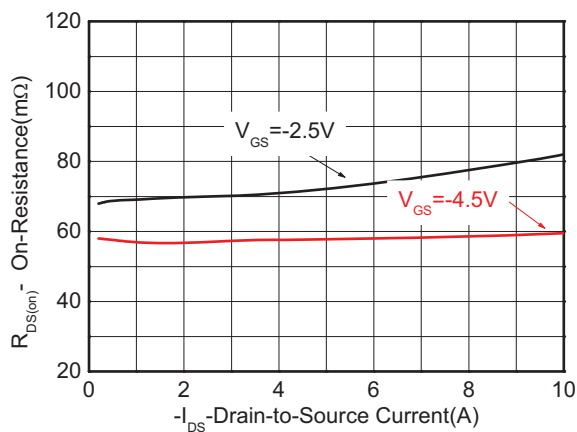
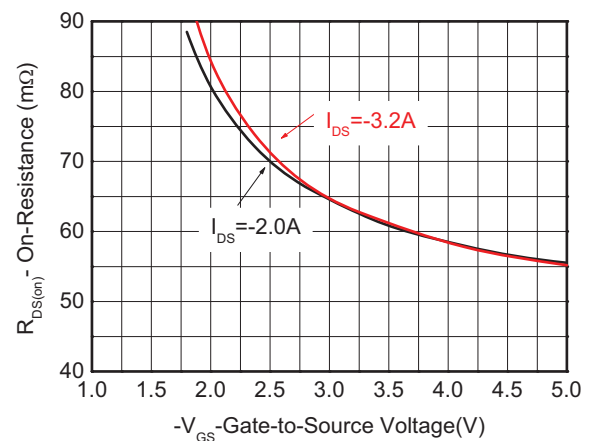
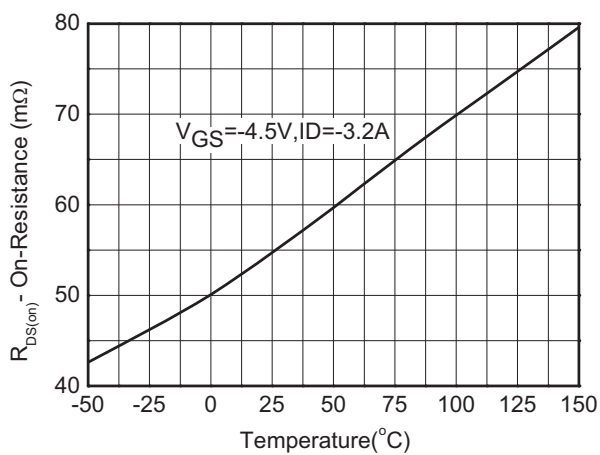
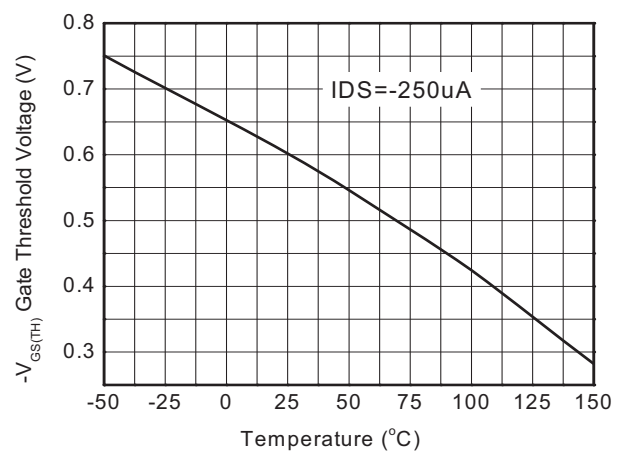
b Surface mounted on FR4 board using minimum pad size, 1oz copper

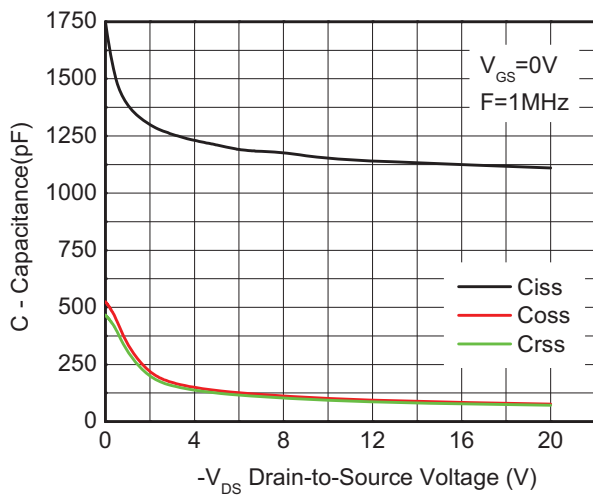
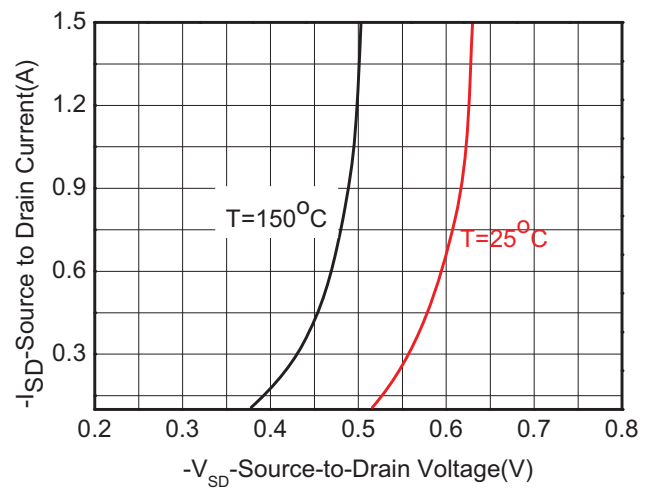
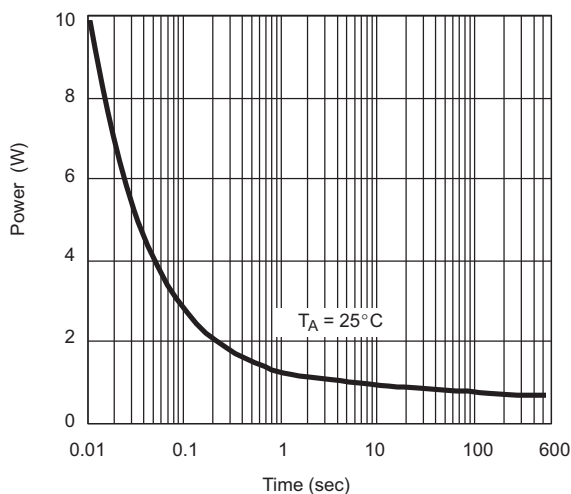
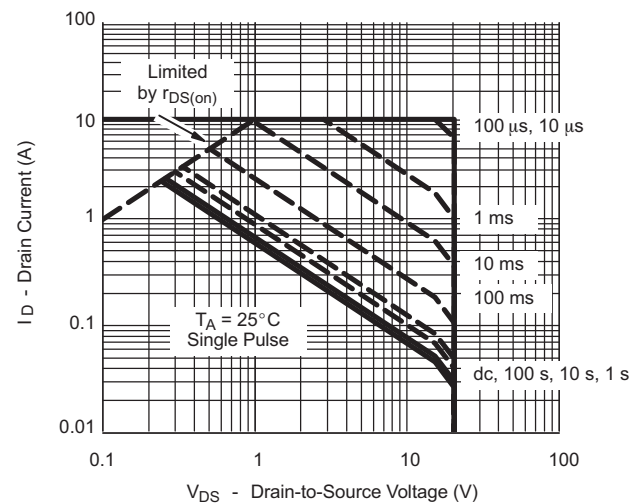
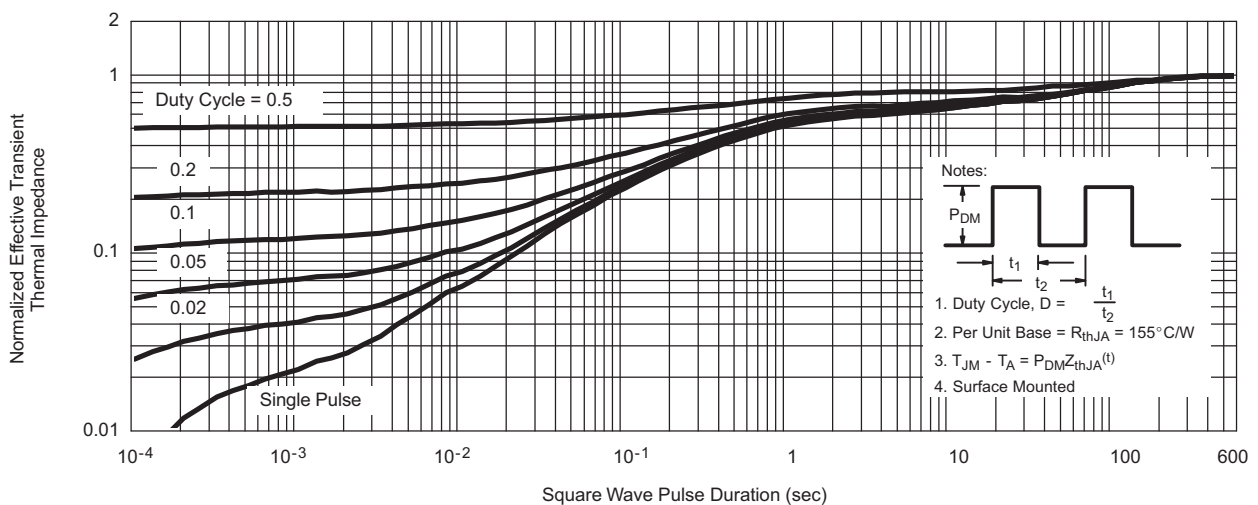
c Repetitive rating, pulse width limited by junction temperature, $t_p=10\mu\text{s}$, Duty Cycle=1%

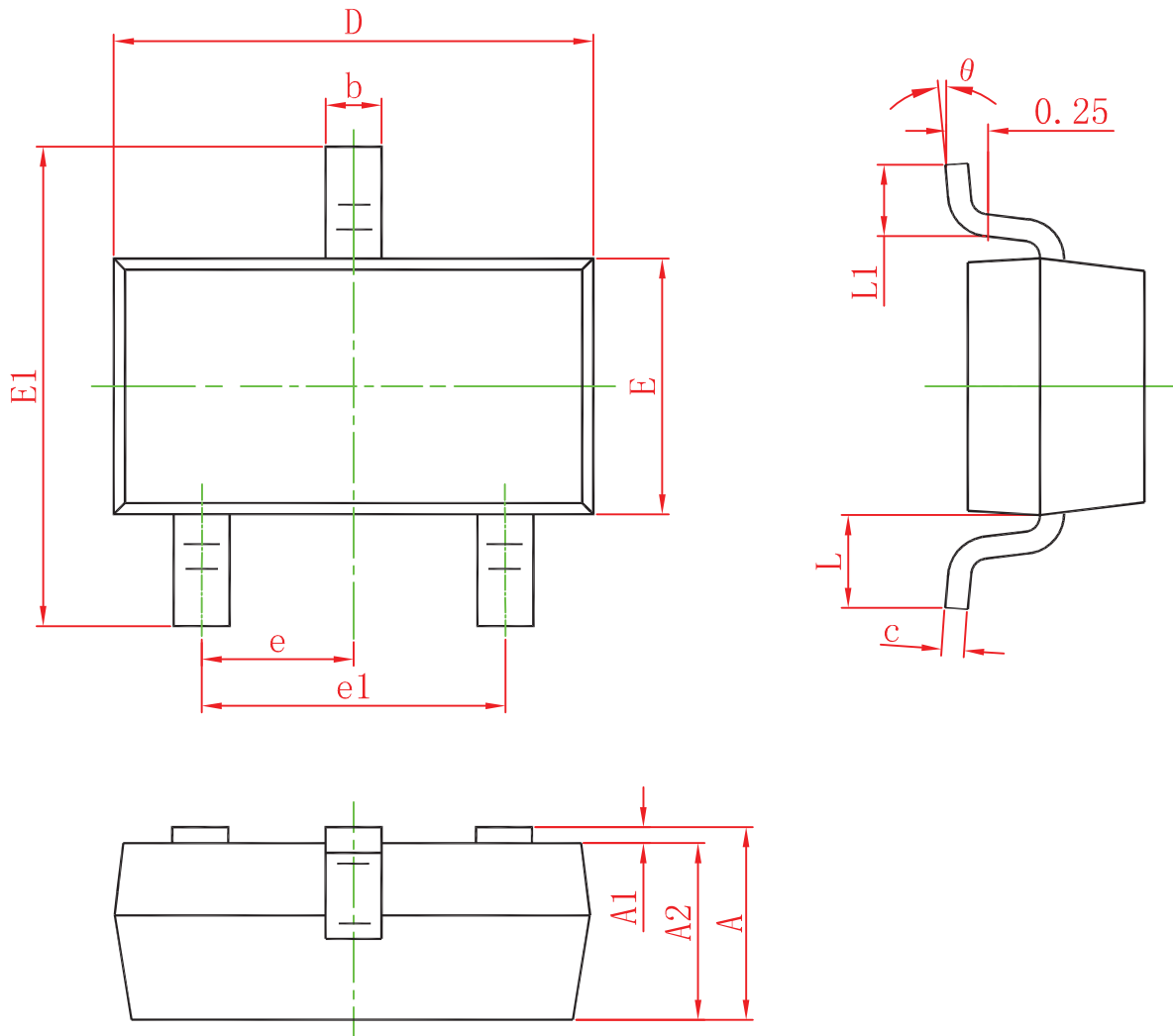
d Repetitive rating, pulse width limited by junction temperature $T_J=150^{\circ}\text{C}$.

Electronics Characteristics (Ta=25°C, unless otherwise noted)

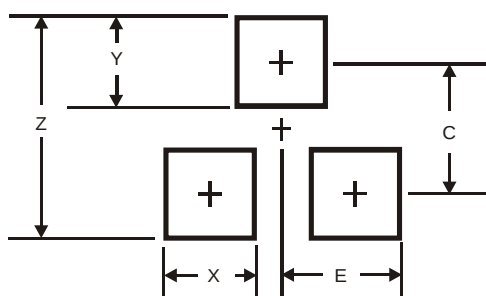
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0 V, I _D = -250uA	-20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-16 V, V _{GS} = 0V			-1	uA
Gate-to-source Leakage Current	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±12V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _D = -250uA	-0.35	-0.6	-1.0	V
Drain-to-source On-resistance	R _{DS(on)}	V _{GS} = -4.5V, I _D = -3.2A		56	65	mΩ
		V _{GS} = -2.5V, I _D = -2.8A		69	81	
		V _{GS} = -1.8V, I _D = -2.3A		86	110	
Forward Transconductance	g _{FS}	V _{DS} = -5 V, I _D = -3.6A		10		S
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C _{ISS}	V _{GS} = 0 V, f = 1.0 MHz, V _{DS} = -10 V		1130		pF
Output Capacitance	C _{OSS}			120		
Reverse Transfer Capacitance	C _{RSS}			115		
Total Gate Charge	Q _{G(TOT)}	V _{GS} = -4.5 V, V _{DS} = -10 V, I _D = -2.7A		11		nC
Threshold Gate Charge	Q _{G(TH)}			0.6		
Gate-to-Source Charge	Q _{GS}			1.3		
Gate-to-Drain Charge	Q _{GD}			2.7		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	td(ON)	V _{GS} = -4.5 V, V _{DD} = -10 V, R _L =3.5 Ω, R _G =6 Ω		16		ns
Rise Time	tr			20		
Turn-Off Delay Time	td(OFF)			65		
Fall Time	tf			15		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V _{SD}	V _{GS} = 0 V, I _S = -1.0A		-0.62	-1.5	V

Typical Characteristics (Ta=25°C, unless otherwise noted)

Output characteristics

Transfer characteristics

On-Resistance vs. Drain current

On-Resistance vs. Gate-to-Source voltage

On-Resistance vs. Junction temperature

Threshold voltage vs. Temperature


Capacitance

Body diode forward voltage

Single pulse power

Safe operating area

Transient thermal response (Junction-to-Ambient)

Package outline dimensions
SOT-23


Symbol	Dimensions in millimeter		
	Min.	Typ.	Max.
A	0.900	1.025	1.150
A1	0.000	0.050	0.100
A2	0.900	0.975	1.050
b	0.300	0.400	0.500
c	0.080	0.115	0.150
D	2.800	2.900	3.000
E	1.200	1.300	1.400
E1	2.250	2.400	2.550
e	0.950TYP		
e1	1.800	1.900	2.000
L	0.550REF		
L1	0.300		0.500
θ	0°		8°

Suggested Land Pattern
SOT-23


Dimensions	SOT-23(mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35