

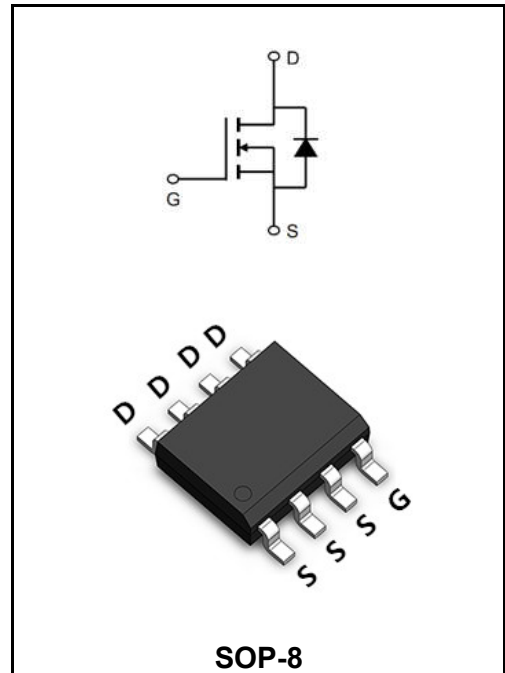
**100V N-CHANNEL ENHANCEMENT MODE MOSFET**

**MAIN CHARACTERISTICS**

<b>I<sub>D</sub></b>	40A
<b>V<sub>DSS</sub></b>	100V
<b>R<sub>DS(on)-typ</sub>(@V<sub>GS</sub>=10V)</b>	< 25mΩ( <b>Type:19 mΩ</b> )

**Application**

- ◆ Consumer electronic power supply
- ◆ Motor control
- ◆ Synchronous-rectification
- ◆ Isolated DC



**Maximum Ratings at T<sub>c</sub>=25°C unless otherwise specified**

Characteristics	Symbols	Value	Units
Drain-Source Voltage	<b>V<sub>DS</sub></b>	100	<b>V</b>
Gate - Source Voltage	<b>V<sub>GS</sub></b>	±20	<b>V</b>
Continuous drain current <sup>1)</sup> , T <sub>c</sub> =25 °C	<b>I<sub>D</sub></b>	40	<b>A</b>
Pulsed drain current <sup>2)</sup> , T <sub>c</sub> =25 °C	<b>I<sub>D, pulse</sub></b>	120	<b>A</b>
Power dissipation <sup>3)</sup> , T <sub>C</sub> =25 °C	<b>P<sub>D</sub></b>	71	<b>W</b>
Single Pulse Avalanche Energy <sup>5)</sup>	<b>E<sub>AS</sub></b>	57	<b>mJ</b>
Operation and storage temperature	<b>T<sub>STG</sub>, T<sub>J</sub></b>	-55 to +150	<b>°C</b>
Thermal Resistance, Junction-case	<b>R<sub>θJC</sub></b>	1.76	<b>°C/W</b>
Thermal Resistance, Junction-ambient <sup>4)</sup>	<b>R<sub>θJA</sub></b>	62	<b>°C/W</b>

**Maximum Ratings at Tc=25°C unless otherwise specified**

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	$BV_{DSS}$	100	107	-	V
Gate -Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	1.2	1.5	2.5	V
Drain-source on-state resistance	$V_{GS}=10V, I_D=10A$	$R_{DS(on)}$	-	19.0	25.0	mΩ
	$V_{GS}=4.5V, I_D=7A$		-	24.4	30.0	
Gate-Source Leakage Current	$V_{GS}=\pm 20V$	$I_{GSS}$	-	-	$\pm 100$	nA
Drain-Source Leakage Current	$V_{DS}=100V, V_{GS}=0V$	$I_{DSS}$	-	-	1	μA
Input Capacitance	$V_{GS}=0V$ $V_{DS}=50V$ $f=100KHz$	$C_{iss}$	-	1003.9	-	pF
Output Capacitance		$C_{oss}$	-	185.4	-	
Reverse Transfer Capacitance		$C_{rss}$	-	9.8	-	
Turn-on delay time	$V_{GS}=10V$ $V_{DS}=50V$ $R_G=10\Omega$ $I_D=5A$	$t_{d(on)}$	-	16.6	-	ns
Rise Time		$T_r$	-	3.8	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	75.5	-	
Fall Time		$t_f$	-	46	-	
Total Gate Charge	$I_D=5A$ $V_{DS}=50V$ $V_{GS}=10V$	$Q_g$	-	16.2	-	nC
Gate-Source Charge		$Q_{gs}$	-	2.8	-	
Gate-Drain Charge		$Q_{gd}$	-	4.1	-	
Gate plateau voltage		$V_{plateau}$	-	3	-	
Diode forward current	$V_{GS}<V_{th}$	$I_S$	-	30	-	A
Pulsed Source Current		$I_{SP}$	-	90	-	A
Reverse Recovery Time	$I_S=1A, di/dt=100A/\mu s$	$t_{rr}$	49	-	-	ns
Reverse Recovery Charge		$Q_{rr}$	61.8	-	-	nC
Peak reverse recovery current		$I_{rrm}$	2.4	-	-	A

Note :

- 1、 Calculated continuous current based on maximum allowable junction temperature.
- 2、 Repetitive rating; pulse width limited by max. junction temperature.
- 3、 Pd is based on max. junction temperature, using junction-case thermal resistance.
- 4、 The value of Rθja is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with Ta=25 °C.
- 5、 VDD=50 V, RG=25 Ω, L=0.3 mH, starting Tj=25 °C.

Typical Characteristics

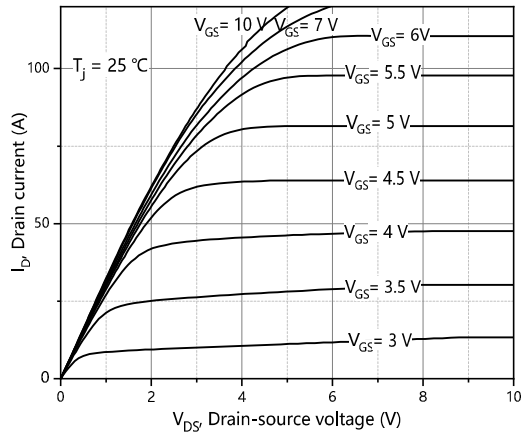


Figure 1, Typ. output characteristics

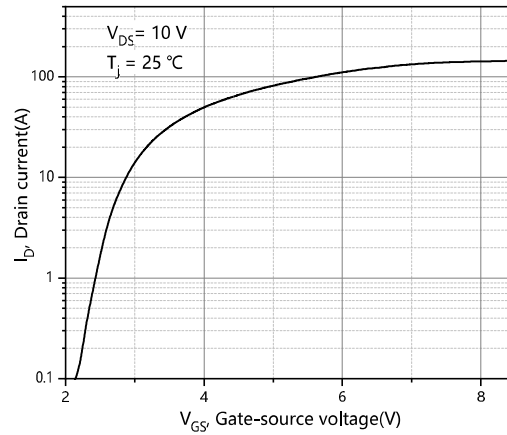


Figure 2, Typ. transfer characteristics

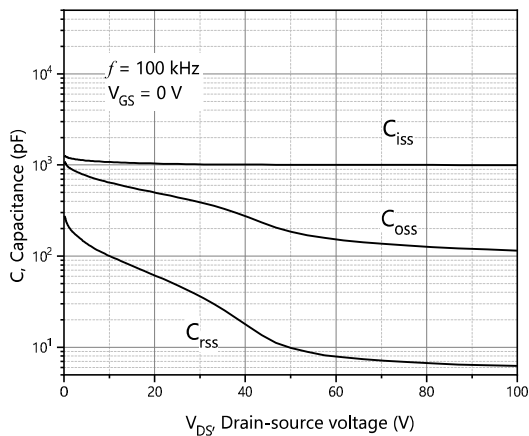


Figure 3, Typ. capacitances

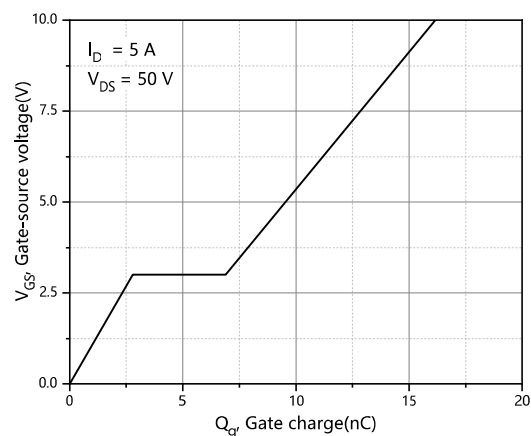


Figure 4, Typ. gate charge

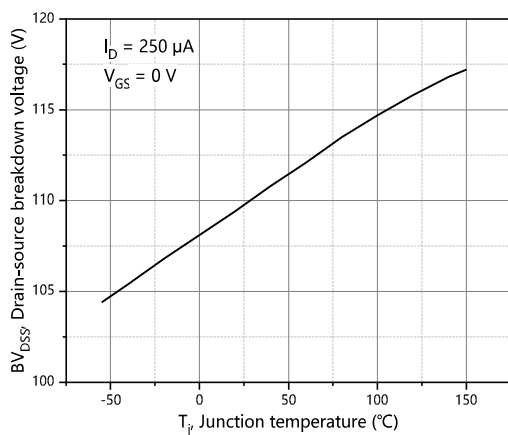


Figure 5, Drain-source breakdown voltage

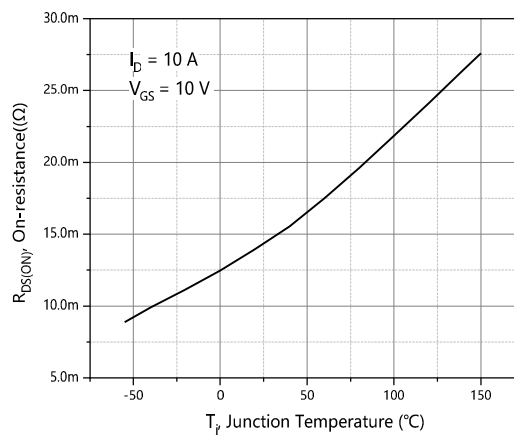


Figure 6, Drain-source on-state resistance

**Ratings and Characteristic Curves**

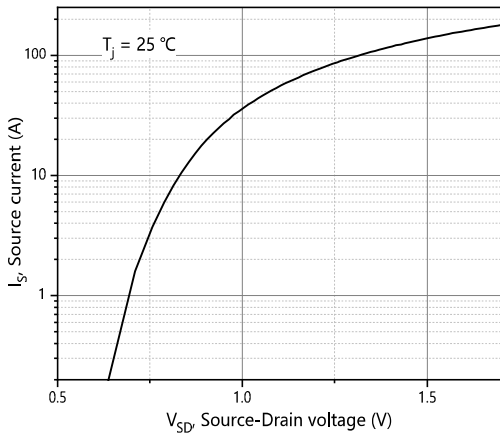


Figure 7, Forward characteristic of body diode

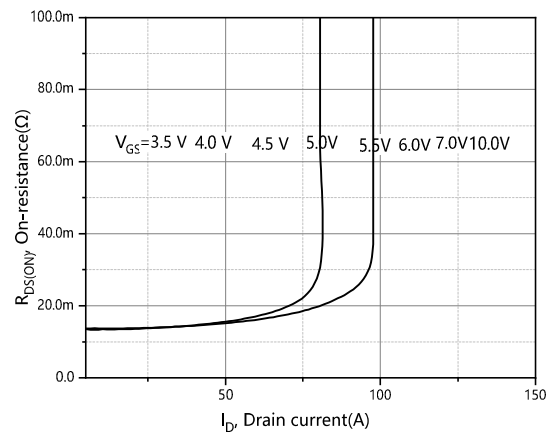


Figure 8, Drain-source on-state resistance

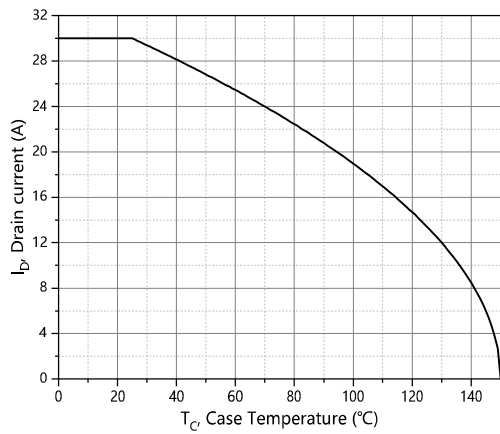


Figure 9, Drain current

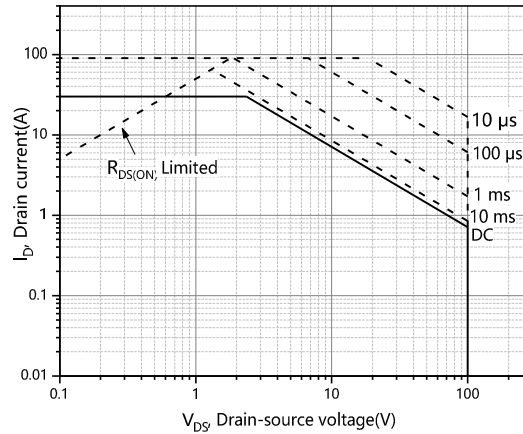


Figure 10, Safe operation area  $T_C=25\text{ °C}$

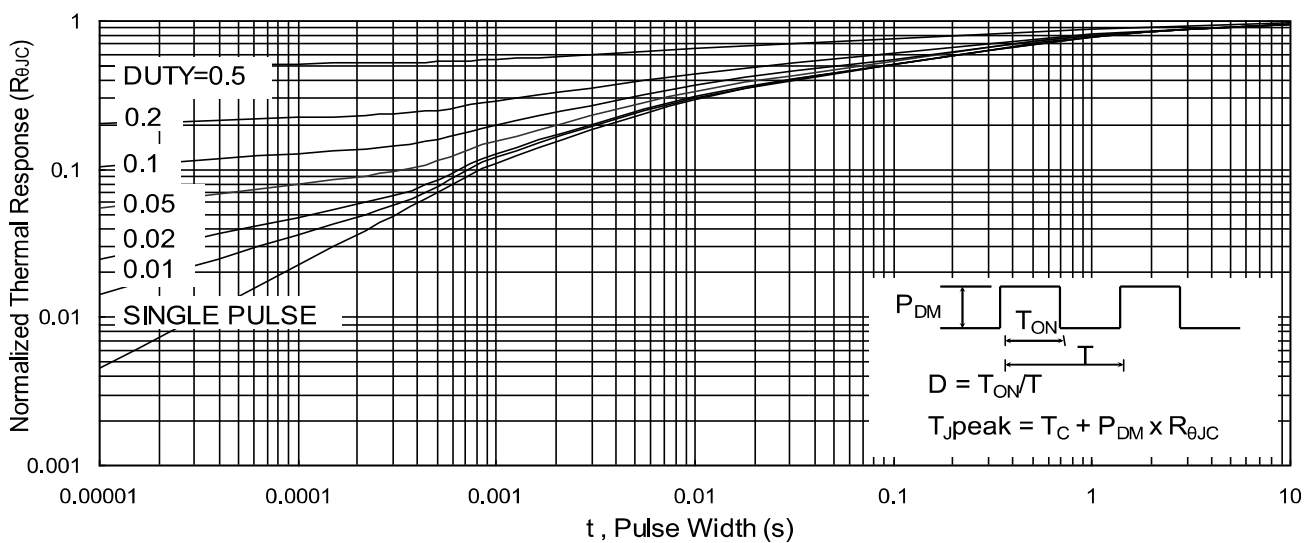
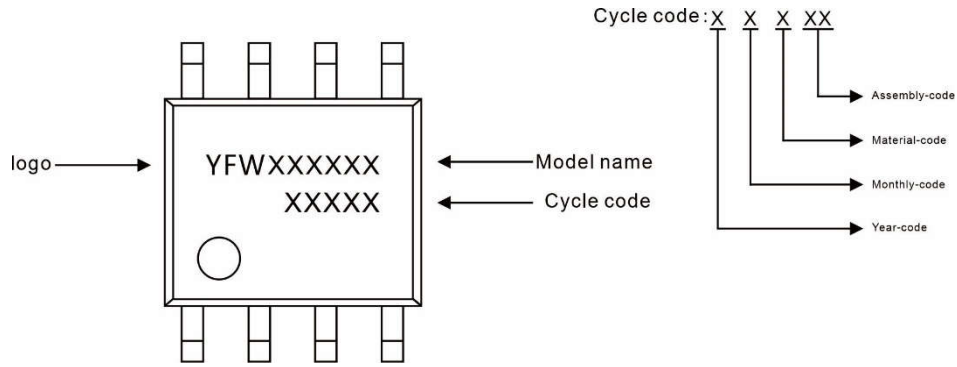


Fig11. Normalized Maximum Transient Thermal Impedance

**Marking Diagram**



**Ordering information**

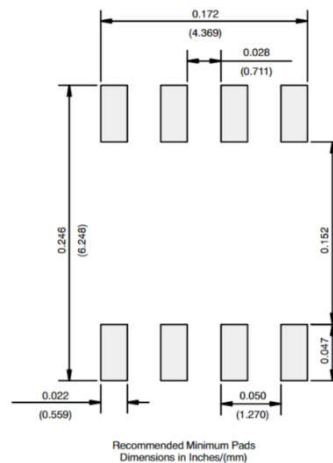
Package	Packing Description	Packing Quantity
SOP-8	Tape/Reel, 13" reel	3000PCS/Reel 30000PCS/Carton

**Package Dimensions**

**SOP-8**

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	1.35	1.75	0.053	0.069
A1	0.10	0.25	0.004	0.010
A2	1.35	1.50	0.053	0.059
b	0.35	0.55	0.014	0.022
c	0.15	0.25	0.006	0.010
D	4.80	5.00	0.189	0.197
D1	3.10	3.50	0.122	0.138
E	5.80	6.20	0.228	0.244
E1	3.80	4.00	0.150	0.157
E2	2.20	2.60	0.087	0.102
e	1.27 (BSC)		0.050 (BSC)	
L	0.40	1.27	0.016	0.050
θ	0°	8°	0°	8°

**The recommended mounting pad size**



## Disclaimer

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