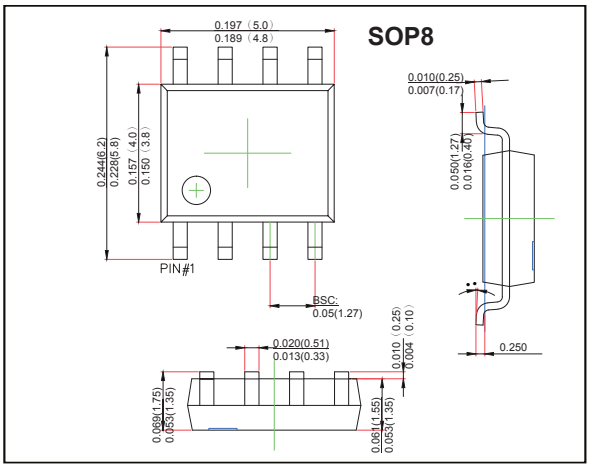
SOP-8 Plastic-Encapsulate MOSFETS

Features

- VDS (V) = 30V
- ID = 5.3 A (VGS = 10V)
- RDS(ON) < 50mΩ (VGS =-10V)
- RDS(ON) < 80mΩ (VGS =-4.5V)
- Fast switching speed
- P-Channel MOSFET

MECHANICAL DATA

- Case style:SOP8 molded plastic
- Mounting position:any



MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current	I_D	-5.3	A
Pulsed Drain Current	I_{DM}	-20	
Power Dissipation (Note.1)	P_D	2.5	W
Power Dissipation (Note.2)		1.2	
Power Dissipation (Note.3)		1	
Thermal Resistance.Junction- to-Ambient	R_{thJA}	50	℃/W
Thermal Resistance.Junction- to-Case	R_{thJC}	25	
Junction Temperature	T_J	150	℃
Junction Storage Temperature Range	T_{stg}	-55 to 150	

Note.1: 50°C/W when mounted on a 1in² pad of 2 oz copper

Note.2: 105°C/W when mounted on a .04 in² pad of 2 oz copper

Note.3: 125°C/W when mounted on a minimum pad.

MOSFET ELECTRICAL CHARACTERISTICS T_A=25℃ unless otherwise specified

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=-250μA, V_{GS}=0V	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-24V, V_{GS}=0V			-1	μA
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=-250μA	-1		-3	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-5.3A (Note.1)			50	mΩ
		V_{GS}=-10V, I_D=-5.3A ,T_J=125℃ (Note.1)			79	
		V_{GS}=-4.5V, I_D=-4.2A (Note.1)			80	
On state drain current	$I_{D(ON)}$	V_{GS}=-10V, V_{DS}=-5V (Note.1)	-20			A
Forward Transconductance	g_{FS}	V_{DS}=-15V, I_D=-5.3A (Note.1)		12		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-15V, f=1MHz		690		pF
Output Capacitance	C_{oss}			306		
Reverse Transfer Capacitance	C_{rss}			77		
Total Gate Charge	Q_g	V_{GS}=-15V, V_{DS}=-10V, I_D=-5.3A		14	23	nC
Gate Source Charge	Q_{gs}			2.4		
Gate Drain Charge	Q_{gd}			4.8		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=-10V, V_{DS}=-15V, I_D=-1A,R_G=6Ω		7	14	ns
Turn-On Rise Time	t_r			10	18	
Turn-Off DelayTime	$t_{d(off)}$			19	34	
Turn-Off Fall Time	t_f			11	20	
Maximum Body-Diode Continuous Current	I_S				-5.3	A
Diode Forward Voltage	V_{SD}	I_S=-5.3A,V_{GS}=0V (Note.1)			-1.2	V

Note.1: Pulse Test: Pulse Width < 300μs, Duty Cycle < 2.0%

RATINGS AND CHARACTERISTIC CURVES

■ Typical Characterisitics

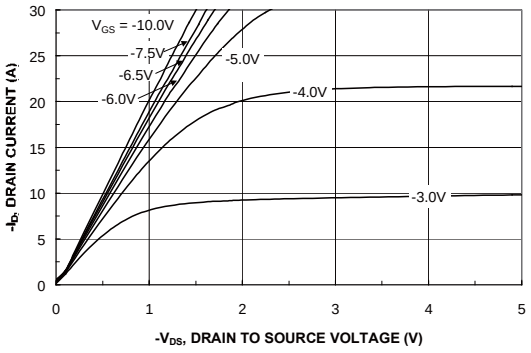


Figure 1. On-Region Characteristics.

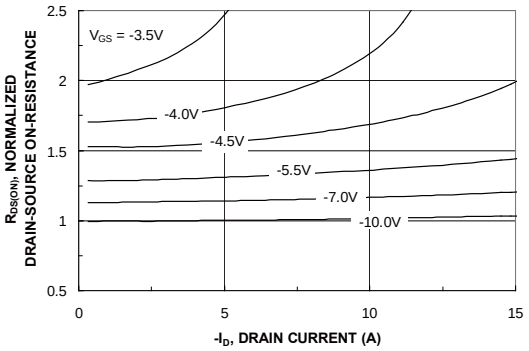


Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.

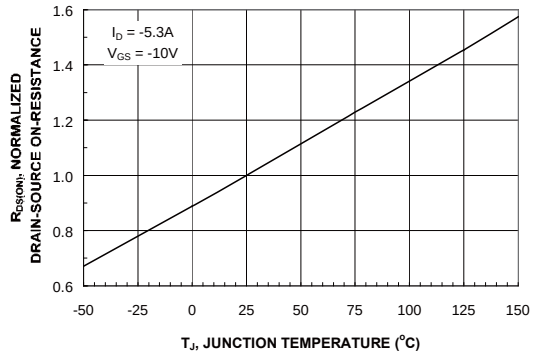


Figure 3. On-Resistance Variation with Temperature.

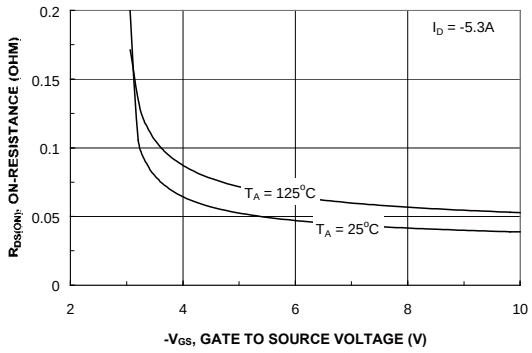


Figure 4. On-Resistance Variation with Gate-to-Source Voltage.

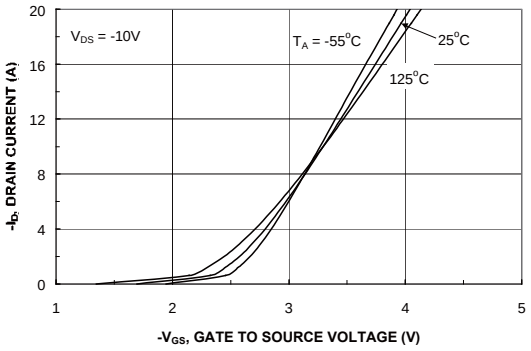


Figure 5. Transfer Characteristics.

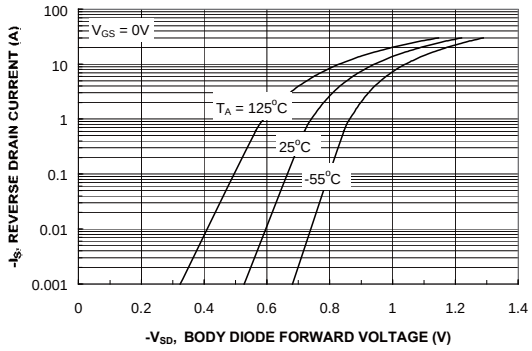


Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature.

RATINGS AND CHARACTERISTIC CURVES

■ Typical Characterisitics

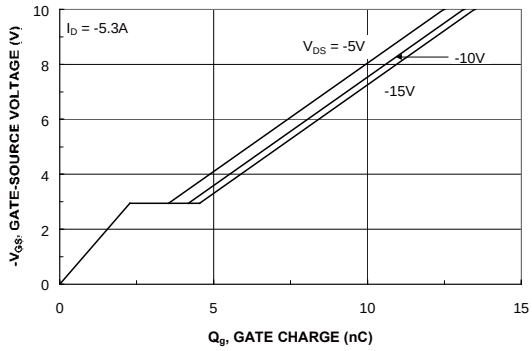


Figure 7. Gate Charge Characteristics.

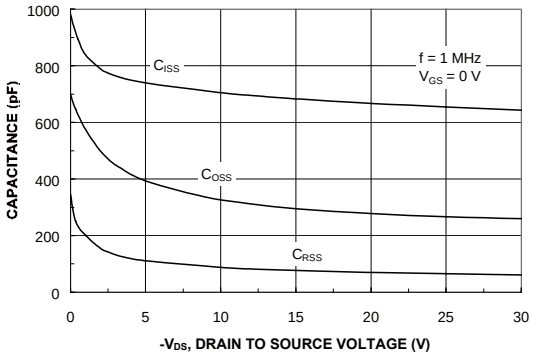


Figure 8. Capacitance Characteristics.

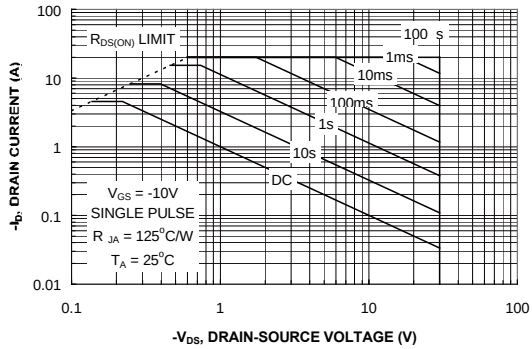


Figure 9. Maximum Safe Operating Area.

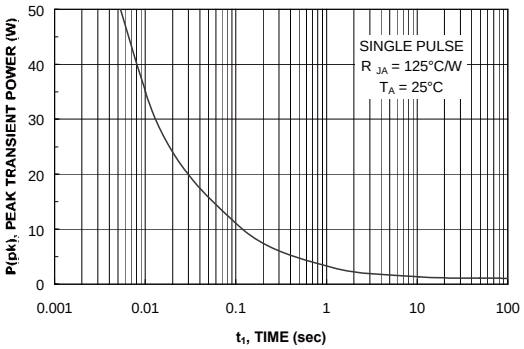


Figure 10. Single Pulse Maximum Power Dissipation.

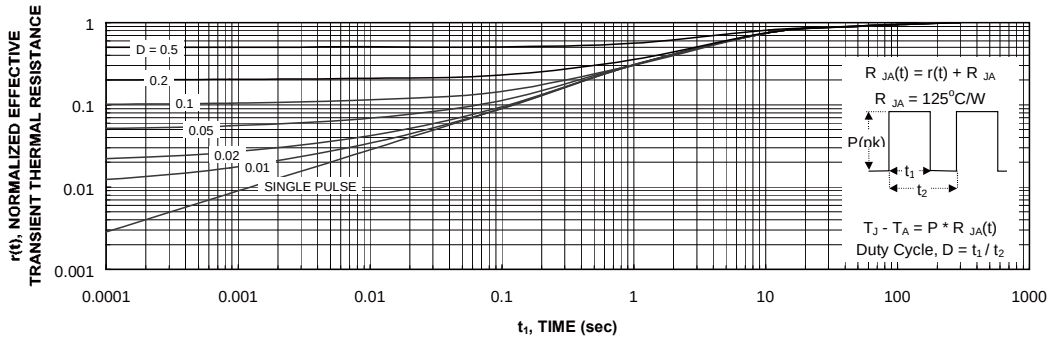


Figure 11. Transient Thermal Response Curve.

Thermal characterization performed using the conditions described in Note 1c.
Transient thermal response will change depending on the circuit board design.