

-30V P-Channel Mosfet

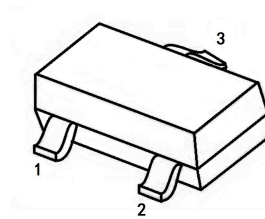
FEATURES

- $R_{DS(ON)} \leq 60m\Omega$ (48m Ω Typ.)
@ $V_{GS}=-10V$
- $R_{DS(ON)} \leq 85m\Omega$ (62m Ω Typ.)
@ $V_{GS}=-4.5V$

APPLICATIONS

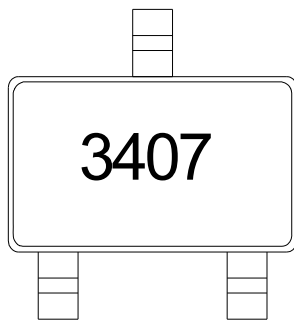
- Load Switch
- Power Management

SOT-23



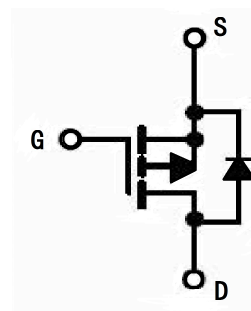
1. GATE
2. SOURCE
3. DRAIN

MARKING



3407: Device code

P-CHANNEL MOSFET



MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

Symbol	Parameter	Max.	Units
V_{DSS}	Drain-Source Voltage	-30	V
V_{GSS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current	-4.1	A
I_{DM}	Pulsed Drain Current ^{note1}	-16.4	A
P_{tot}	Total Power Dissipation	1.67	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	75	°C/W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-55 to +150	°C

MOSFET ELECTRICAL CHARACTERISTICS Ta=25 °C unless otherwise specified

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = -250μA	-30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -30V, V _{GS} = 0V, T _J = 25°C	-	-	-1	μA
I _{GSS}	Gate to Body Leakage Current	V _{GS} = ±20V, V _{DS} = 0V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = -250μA	-1.0	-1.4	-2.5	V
R _{DS(on)}	Static Drain-Source On-Resistance ^{note2}	V _{GS} = -10V, I _D = -4.1A	-	48	60	mΩ
		V _{GS} = -4.5V, I _D = -3.5A	-	62	85	
g _{FS}	Forward Transconductance	V _{DS} = -5V, I _D = -4.1A	5	-	-	S
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} = -15V, V _{GS} = 0V f = 1.0MHz	-	580	-	pF
C _{oss}	Output Capacitance		-	98	-	pF
C _{rss}	Reverse Transfer Capacitance		-	74	-	pF
Q _g	Total Gate Charge	V _{DS} = -15V, I _D = -4.1A, V _{GS} = -10V	-	6.8	-	nC
Q _{gs}	Gate-Source Charge		-	1.0	-	nC
Q _{gd}	Gate-Drain("Miller") Charge		-	1.4	-	nC
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{GS} = -10V, V _{DS} = -15V R _G = 2.5Ω, I _D = -1A R _L = 15Ω,	-	14	-	ns
t _r	Turn-On Rise Time		-	61	-	ns
t _{d(off)}	Turn-Off Delay Time		-	19	-	ns
t _f	Turn-Off Fall Time		-	10	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-4.1	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-16.4	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} = 0V, I _{SD} = -4.1A T _J = 25°C	-	-0.89	-1.2	V

Notes: 1. Repetitive Rating: Pulse width limited by maximum junction temperature

2. Pulse Test: Pulse width ≤ 300μs, Duty Cycle ≤ 2%

TYPICAL PERFORMANCE CHARACTERISTICS

Figure 1: Output Characteristics

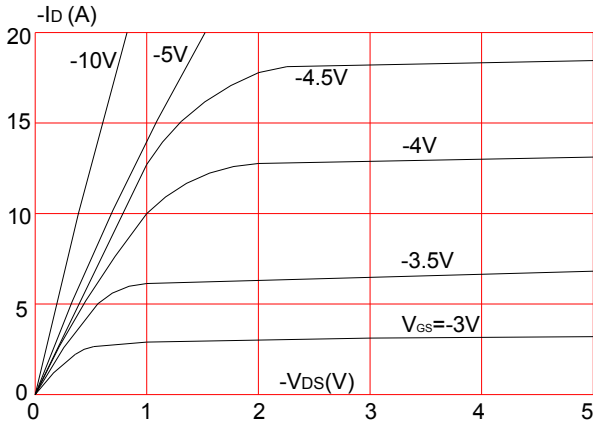


Figure 2: Typical Transfer Characteristics

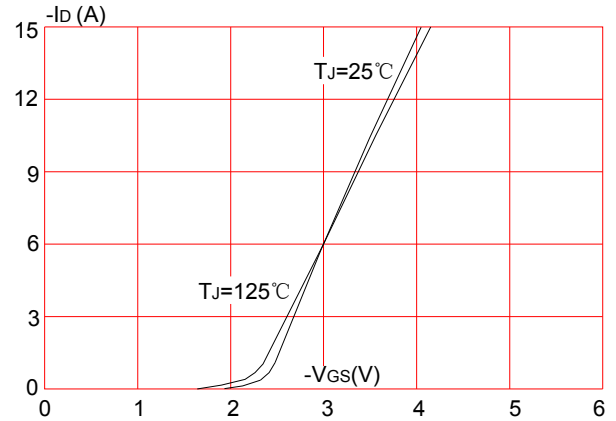


Figure 3: On-resistance vs. Drain Current

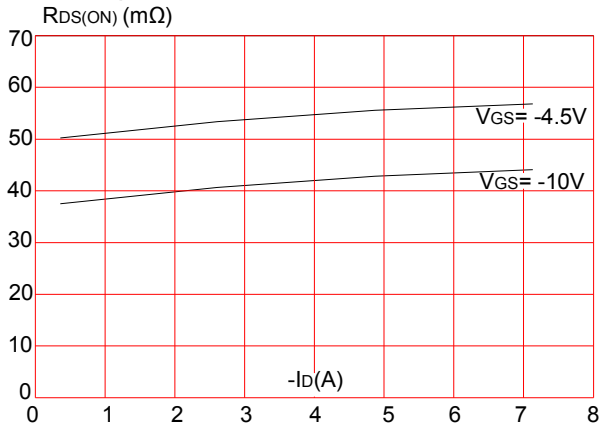


Figure 4: Body Diode Characteristics

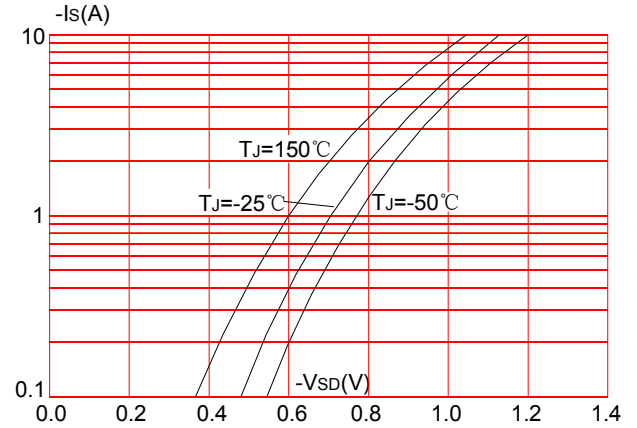


Figure 5: Gate Charge Characteristics

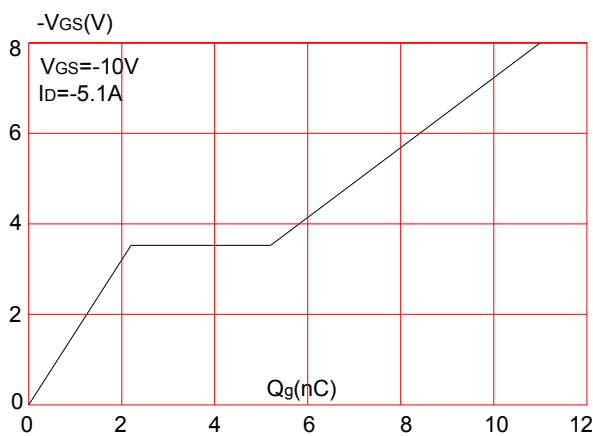
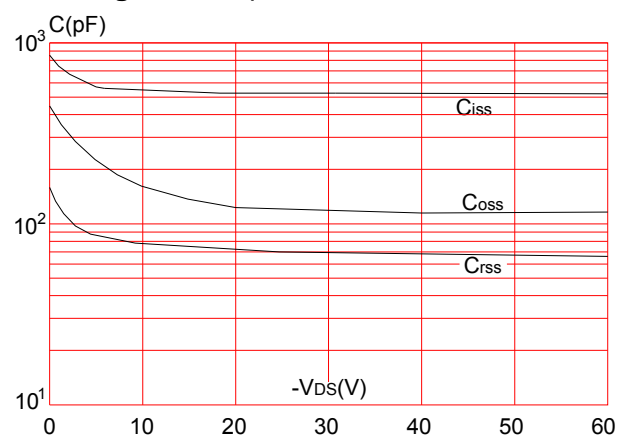


Figure 6: Capacitance Characteristics



TYPICAL PERFORMANCE CHARACTERISTICS (cont.)

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

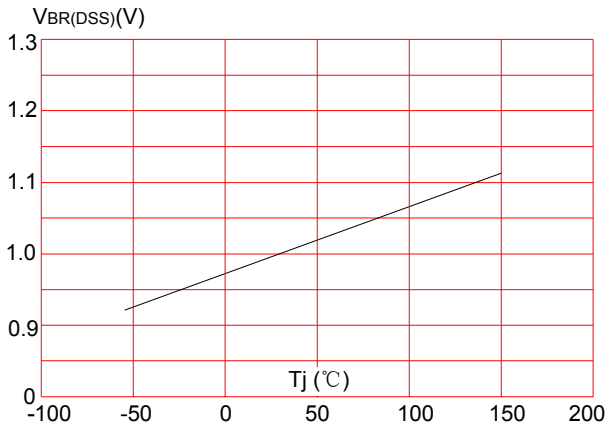


Figure 8: Normalized on Resistance vs. Junction Temperature

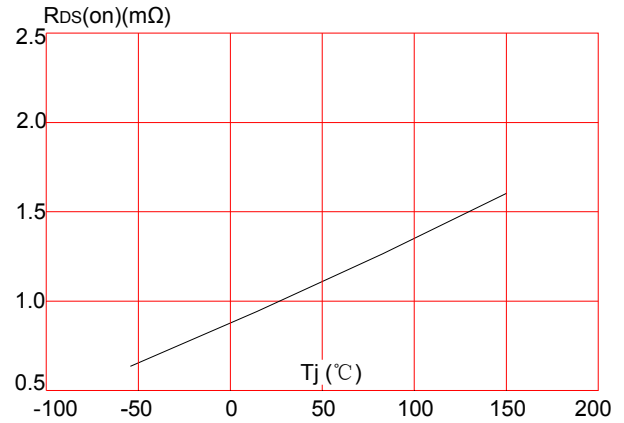


Figure 9: Maximum Safe Operating Area

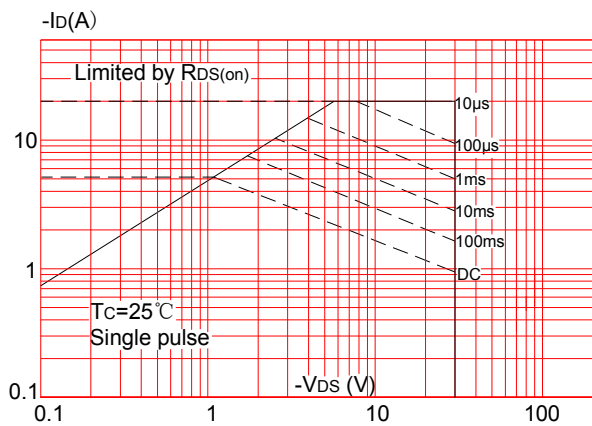


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

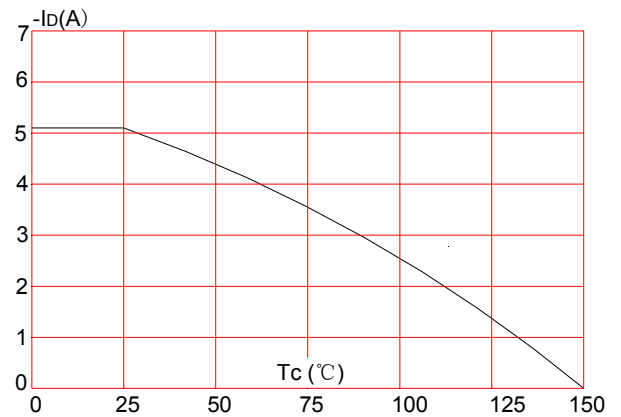
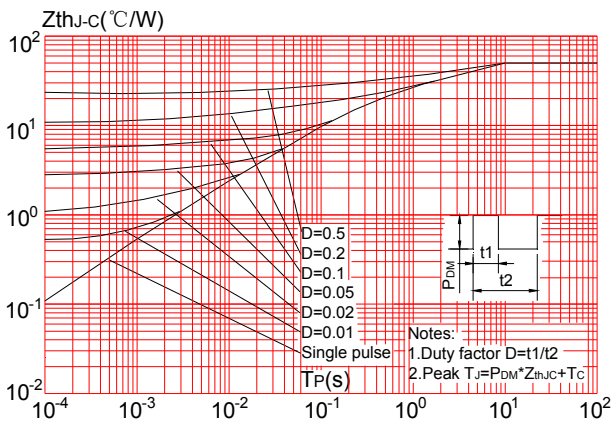
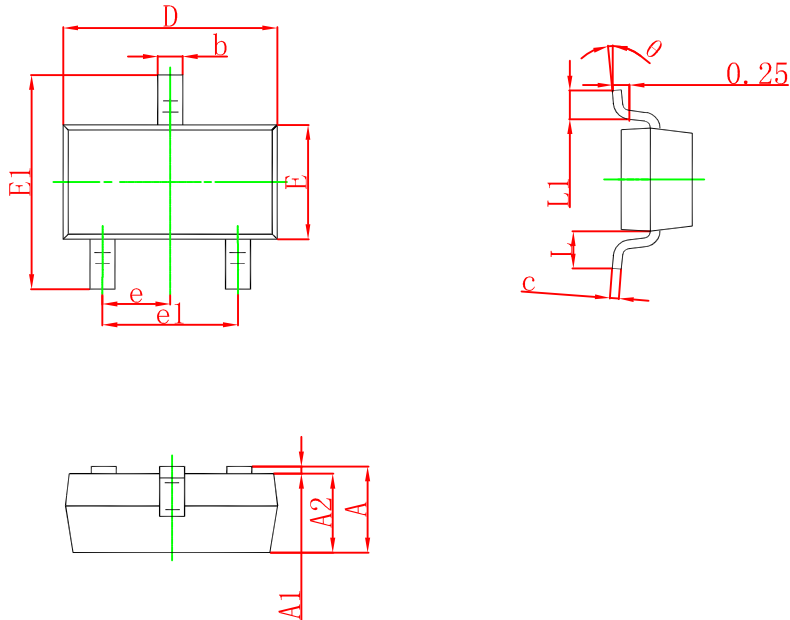


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient (SOP-8)



SOT-23 PACKAGE OUTLINE DRAWING



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°