

-30V P-Channel Enhancement Mode MOSFET

V_{DS} = -30V

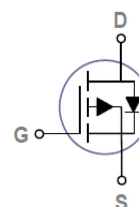
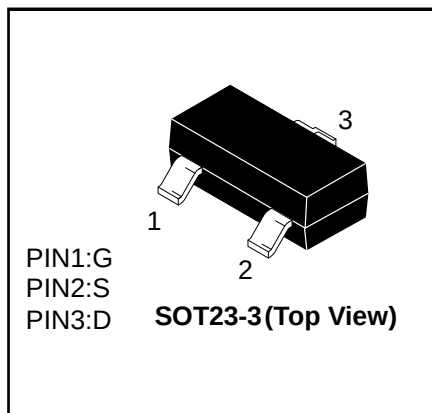
R_{DS(ON)}, V_{GS}@ -10.0V, I_{DS}@ -4.1A < 60.0mΩ

R_{DS(ON)}, V_{GS}@ -4.5V, I_{DS}@ -3.0A < 85.0mΩ

Features

Advanced trench process technology

High Density Cell Design For Ultra Low On-Resistance



Maximum Ratings and Thermal Characteristics (T_A = 25°C unless otherwise noted)

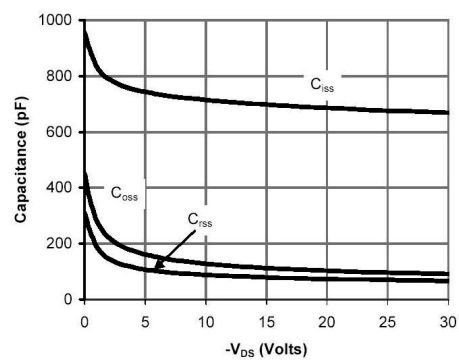
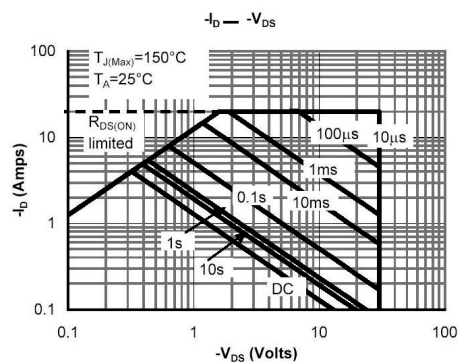
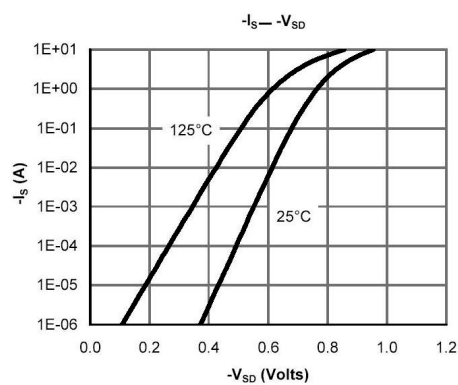
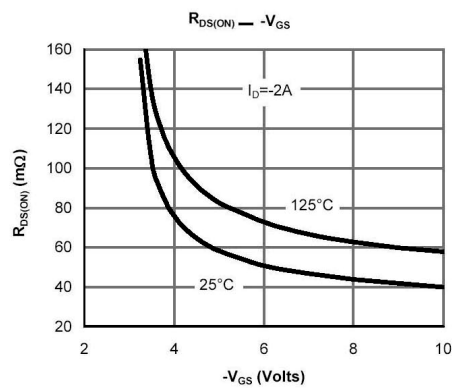
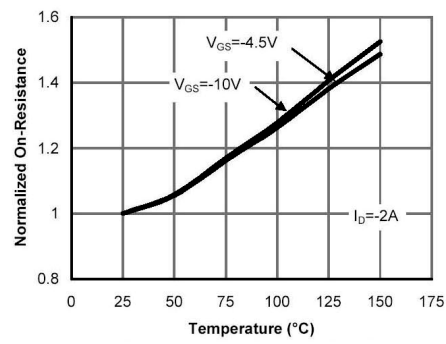
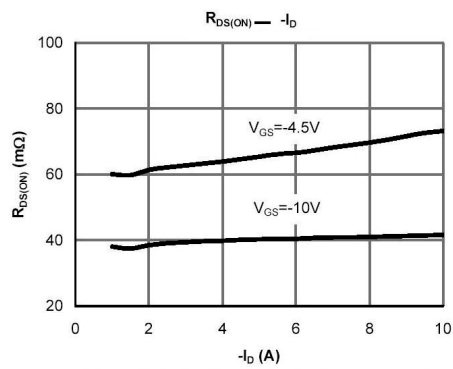
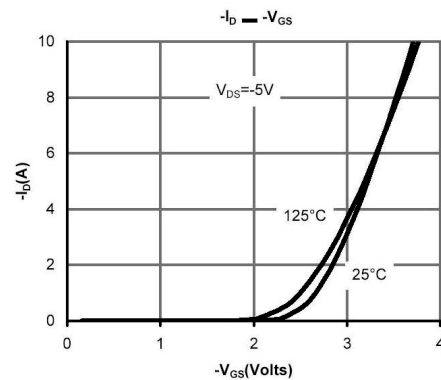
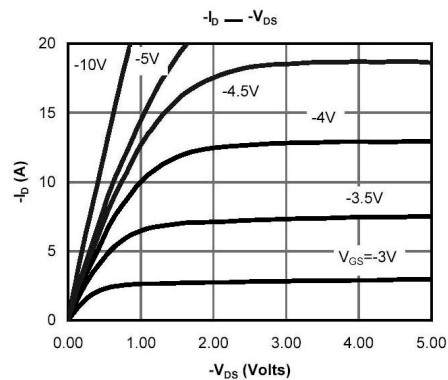
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	-30	V
Drain Current – Continuous	I _D	-4.1	A
Drain Current- Continuous	I _D (T _a =70°C)	-3.5	A
Pulsed Drain Current	I _{DM}	-20	A
Gate-Source Voltage	V _{GS}	±20	V
Total Power Dissipation	P _D	1.4	W
Operating and Storage Junction Temperature Range	T _J , T _{STG}	-55 to 150	°C
Thermal Resistance-Junction to Ambient (t ≤ 10s)	R _{θJA}	90	°C/W
Thermal Resistance-Junction to Lead	R _{θJL}	80	

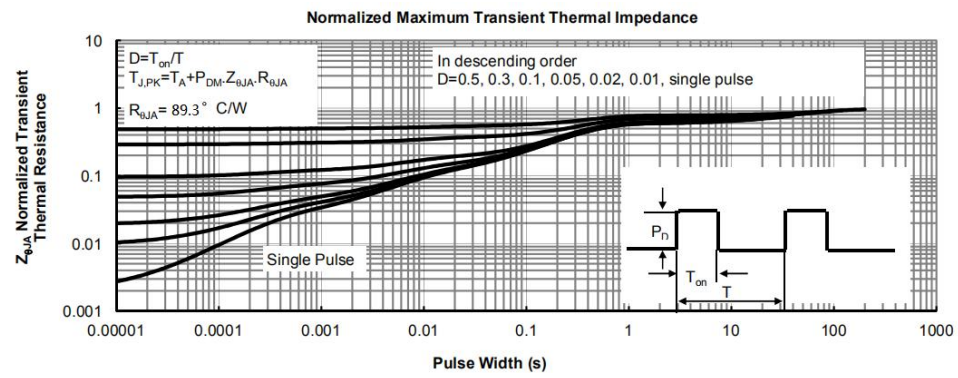
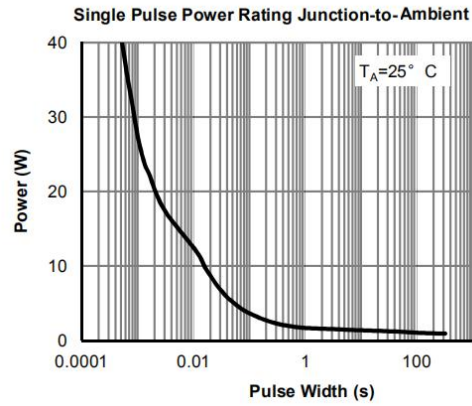
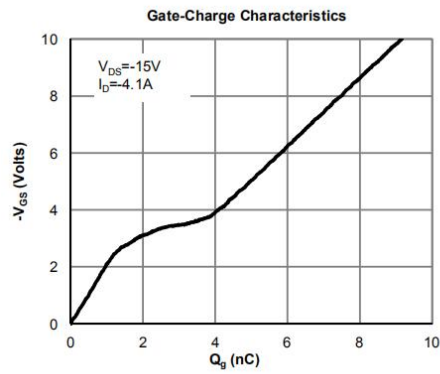
Model	Marking	Package	shipping
M3407MC	A7H	SOT23-3	3000/Tape&Reel

Electrical Characteristics(Ta=25°C)

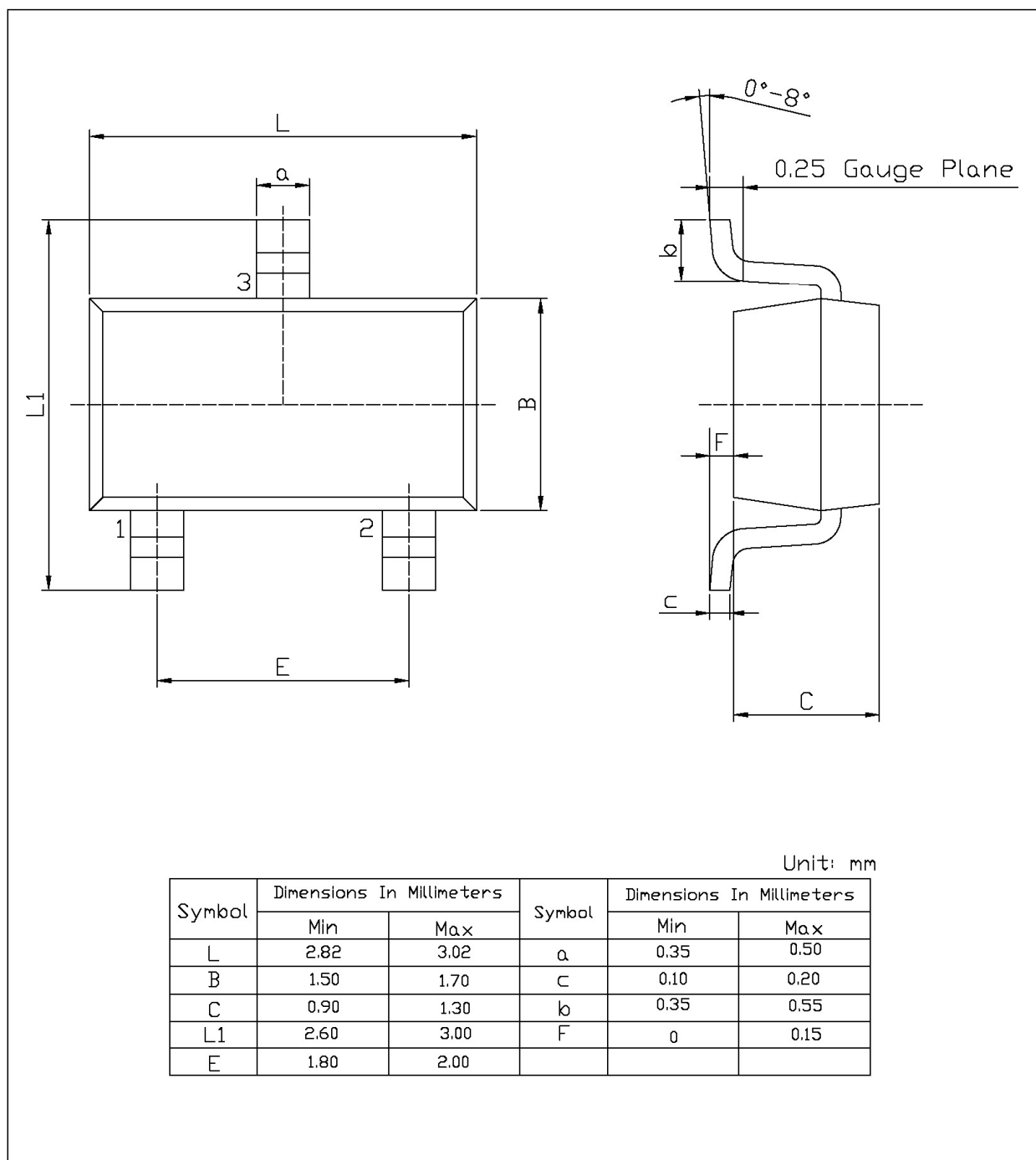
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain–Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=-250\mu A$	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-24V$ $V_{GS}=0V$			-1	μA
		$V_{DS}=-24V$ $V_{GS}=0V$ $T_J=55^\circ C$			-5	μA
Gate–Body Leakage.	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			± 0.1	μA
On–State Drain Current	$I_{D(on)}$	$V_{GS}=-4.5V$ $V_{DS}=-5V$	-10			A
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=-250\mu A$	-1	-1.4	-3	V
Static Drain–Source On–Resistance	$R_{DS(on)1}$	$V_{GS}=-10V$ $I_D=-4.1A$		54	60	m Ω
	$R_{DS(on)2}$	$V_{GS}=-10V$ $I_D=-4.1A$ $T_J=125^\circ C$		57	73	
	$R_{DS(on)3}$	$V_{GS}=-4.5V$ $I_D=-3A$		77	85	
Forward Transconductance	g_{FS}	$V_{DS}=-5V$ $I_D=-4A$	5.5	8.2		S
Drain–Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=-1A$		-0.77	-1	V
Input Capacitance	C_{iss}	$V_{DS}=-15V$ $V_{GS}=0V$ $f=1MHz$		700		pF
Output Capacitance	C_{oss}			120		
Reverse Transfer Capacitance	C_{rss}			75		
Total Gate Charge	$Q_g(10V)$	$V_{GS}=-10V,$ $V_{DS}=-15V,$ $I_D=-4.1A$		9		nC
Total Gate Charge	$Q_g(4.5V)$			4.5		
Gate Source Charge	Q_{gs}			1.5		
Gate Drain Charge	Q_{gd}			2.1		
Turn–On Delay Time	$t_{d(on)}$	$V_{GS}=-10V$ $R_L=3.6\Omega$ $V_{DS}=-15V$ $R_{GEN}=3\Omega$		8.6		ns
Turn–On Rise Time	t_r			5		
Turn–Off Delay Time	$t_{d(off)}$			28.2		
Turn–Off Fall Time	t_f			13.5		
Body Diode Reverse Recovery Time	t_{rr}	$I_F=-4.1A,$ $dI/dt=100A/\mu s$		13		ns
Body Diode Reverse Recovery Charge	Q_{rr}	$I_F=-4.1A,$ $dI/dt=100A/\mu s$		5.5		nC

Electrical Characteristic Curve





Dimension outline Unit:mm



Suggested Pad Layout

