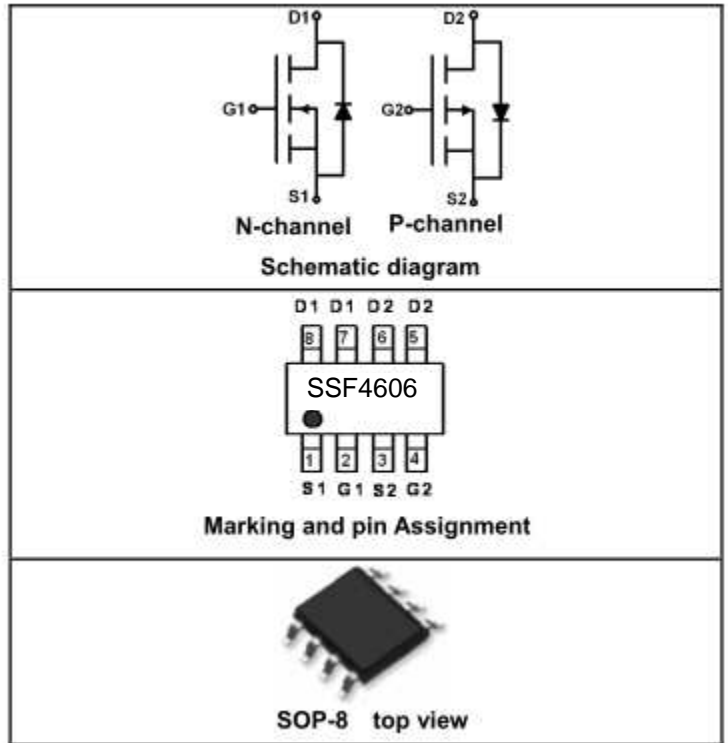


Description

The EC734606 uses advanced trench technology MOSFET to provide excellent $R_{DS(ON)}$ and low gate charge. The complementary MOSFET may be used in power inverters, and other applications.

Features and Benefits:

- ◆ **N-Channel**
 $V_{DS} = 30V, I_D = 6.9A$
 $R_{DS(ON)} < 42m\Omega @ V_{GS}=4.5V$
 $R_{DS(ON)} < 28m\Omega @ V_{GS}=10V$
- ◆ **P-Channel**
 $V_{DS} = -30V, I_D = -6A$
 $R_{DS(ON)} < 58m\Omega @ V_{GS}=-4.5V$
 $R_{DS(ON)} < 35m\Omega @ V_{GS}=-10V$
- ◆ High Power and current handling capability
- ◆ Lead free product is acquired
- ◆ Surface Mount Package



Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	V_{DS}	30	-30	V
Gate-Source Voltage	V_{GS}	± 20	± 20	V
Drain Current-Continuous	$I_D(TA=25^\circ C)$	6.9	-6	A
	$I_D(TA=70^\circ C)$	6.0	-5.0	A
Pulsed Drain Current (Note 1)	I_{DM}	30	-30	A
Maximum Power Dissipation	$PD(TA=25^\circ C)$	2.0	2.0	W
	$PD(TA=70^\circ C)$	1.44	1.44	
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	-55 To 150	°C

Thermal Resistance

Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	N-Ch	62.5	°C/W
		P-Ch	62.5	



Complementary MOSFET

EC734606

Electrical Characteristics (T_A=25°C unless otherwise noted)

Parameter	Symbol	Condition		Min	Typ	Max	Unit
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	N-Ch	30			V
		V _{GS} =0V, I _D =-250μA	P-Ch	-30			
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =24V, V _{GS} =0V	N-Ch			1	μA
		V _{DS} =-24V, V _{GS} =0V	P-Ch			-1	
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	N-Ch			±100	nA
			P-Ch			±100	
ON CHARACTERISTICS (Note 3)							
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	N-Ch	1	1.9	3	V
		V _{DS} =V _{GS} , I _D =-250μA	P-Ch	-1.2	-2	-2.4	
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =-6.9A	N-Ch		22.5	28	mΩ
		V _{GS} =-10V, I _D =-6.0A	P-Ch		28	35	
		V _{GS} =4.5V, I _D =5A	N-Ch		34.5	42	
		V _{GS} =-4.5V, I _D =-5A	P-Ch		44	58	
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =6.9A	N-Ch	10	15.4		S
		V _{DS} =-5V, I _D =-6A	P-Ch		13		
DYNAMIC CHARACTERISTICS (Note4)							
Input Capacitance	C _{iss}	N-Ch V _{DS} =15V, V _{GS} =0V, F=1.0MHz P-Ch V _{DS} =-15V, V _{GS} =0V, F=1.0MHz	N-Ch		680		PF
Output Capacitance	C _{oss}		P-Ch		900		
			N-Ch		100		
Reverse Transfer Capacitance	C _{rss}		P-Ch		200		
			N-Ch		77		
			P-Ch		120		
SWITCHING CHARACTERISTICS (Note 4)							
Turn-on Delay Time	td(on)	N-Ch V _{DD} =15V, R _L =2.2Ω V _{GEN} =10V, R _{GEN} =3Ω P-Ch V _{DD} =-15V, R _L =2.7Ω V _{GEN} =-10V, R _{GEN} =3Ω	N-Ch		4.6		nS
Turn-on Rise Time	tr		P-Ch		7.7		
			N-Ch		4.1		
Turn-Off Delay Time	td(off)		P-Ch		5.7		
			N-Ch		20.6		
Turn-Off Fall Time	tf		P-Ch		20		
			N-Ch		5.2		
Total Gate Charge	Q _g		P-Ch		9.5		
		N-Ch		7			
Gate-Source Charge	Q _{gs}	N-Ch		9.6		nC	
		P-Ch		1.8			
Gate-Drain Charge	Q _{gd}	P-Ch		2.5			
		N-Ch		3.2			
		P-Ch		4.5			
		N-Ch		4.5			

DRAIN-SOURCE DIODE CHARACTERISTICS							
Diode Forward Voltage (Note 3)	V_{SD}	$V_{GS}=0V, I_S=1A$	N-Ch		0.76	1	V
		$V_{GS}=0V, I_S=-1A$	P-Ch		-0.77	-1	

NOTES:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production testing.

N-Channel Thermal Characteristics

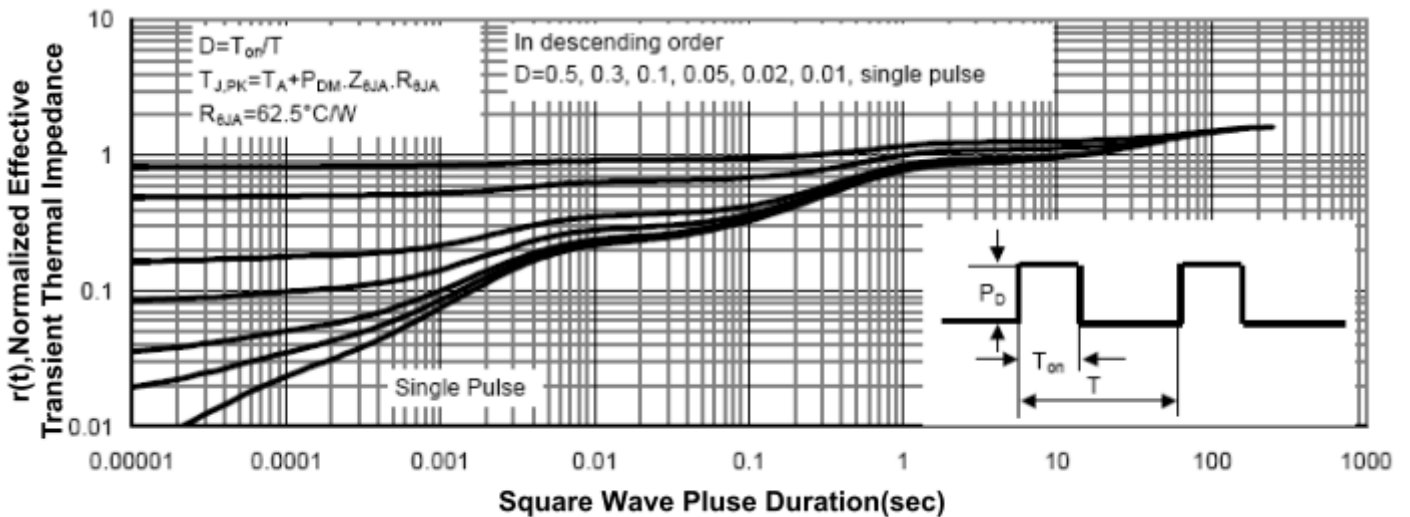


Figure 1: Normalized Maximum Transient Thermal Impedance

P-Channel Thermal Characteristics

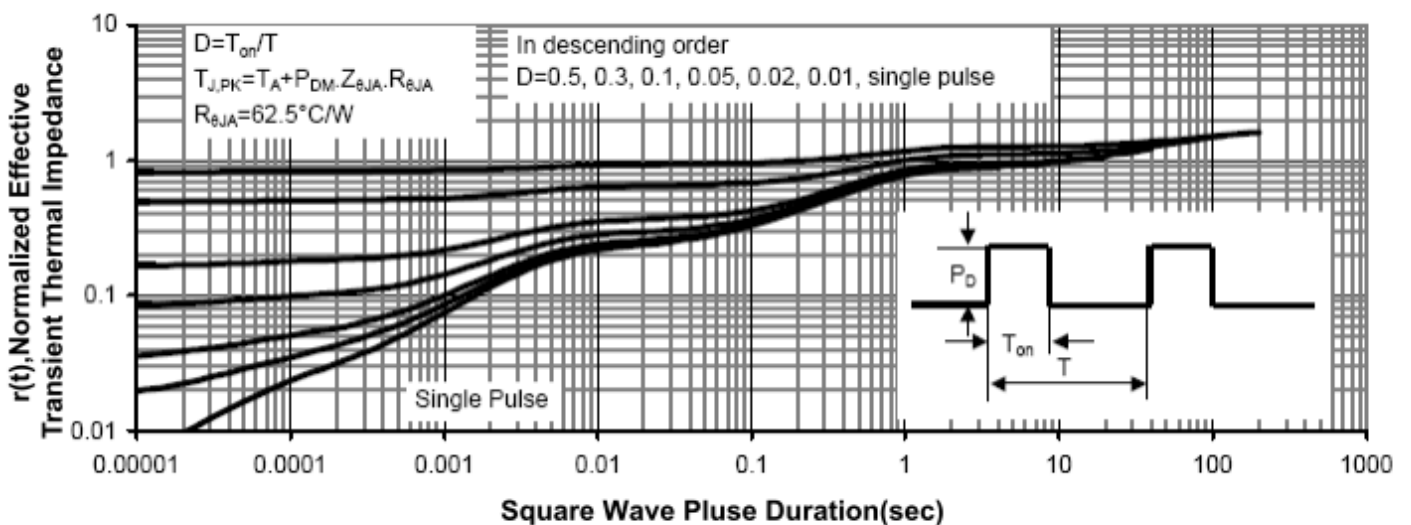
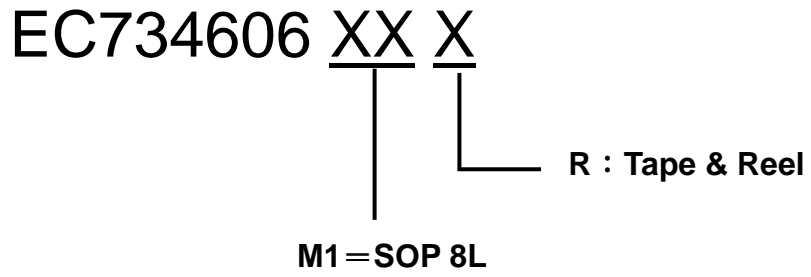


Figure 2: Normalized Maximum Transient Thermal Impedance



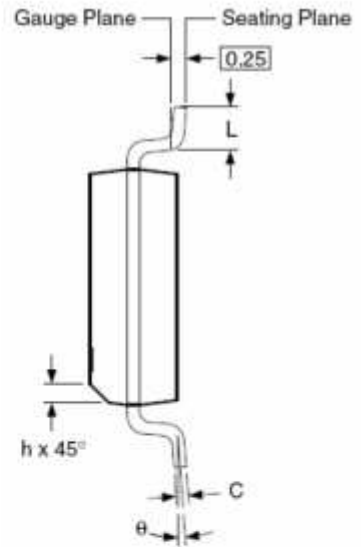
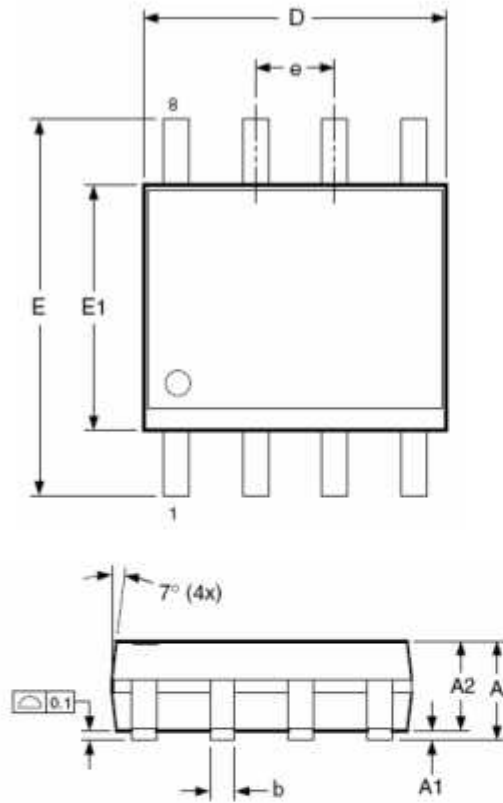
Ordering and Marking Information



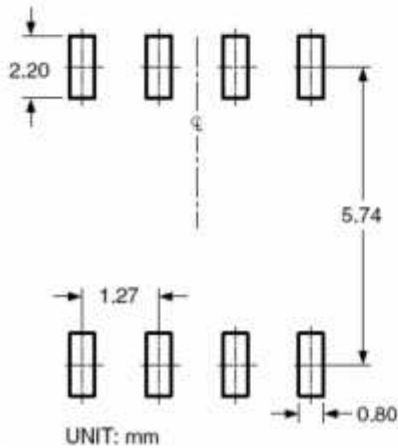
Part Number	Package	Marking
EC734606M1R	SOP-8L	SSF4606

SOP 8L Package Outline Dimension

Dimensions in Millimeters (UNIT:mm)



RECOMMENDED LAND PATTERN



Dimensions in millimeters

Symbols	Min.	Nom.	Max.
A	1.35	1.65	1.75
A1	0.10	—	0.25
A2	1.25	1.50	1.65
b	0.31	—	0.51
c	0.17	—	0.25
D	4.80	4.90	5.00
E1	3.80	3.90	4.00
e	1.27 BSC		
E	5.80	6.00	6.20
h	0.25	—	0.50
L	0.40	—	1.27
θ	0°	—	8°

Dimensions in inches

Symbols	Min.	Nom.	Max.
A	0.053	0.065	0.069
A1	0.004	—	0.010
A2	0.049	0.059	0.065
b	0.012	—	0.020
c	0.007	—	0.010
D	0.189	0.193	0.197
E1	0.150	0.154	0.157
e	0.050 BSC		
E	0.228	0.236	0.244
h	0.010	—	0.020
L	0.016	—	0.050
θ	0°	—	8°