

RoHS Compliant Product

A suffix of "-C" specifies halogen and lead-free

DESCRIPTION

These miniature surface mount MOSFETs utilize high cell density process. Low $R_{DS(on)}$ assures minimal power loss and conserves energy, making this device ideal for use in power management circuitry. Typical applications are DC-DC converters, power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

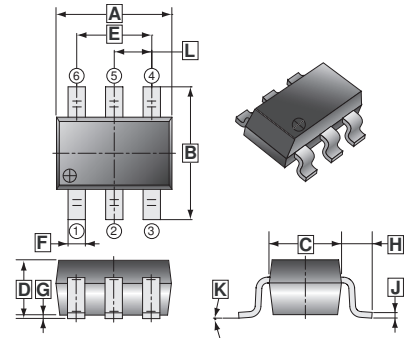
FEATURES

- Low $R_{DS(on)}$ Provides Higher Efficiency And Extends Battery Life.
- Miniature TSOP-6 Surface Mount Package Saves Board Space.

PACKAGE INFORMATION

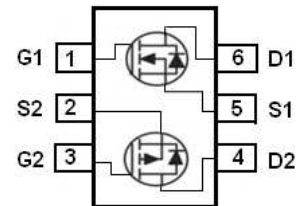
Package	MPQ	Leader Size
TSOP-6	3K	7' inch

TSOP-6



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0	0.10
B	2.60	3.00	H	0.60	REF.
C	1.40	1.80	J	0.12	REF.
D	1.10	MAX.	K	0°	10°
E	1.90	REF.	L	0.95	REF.
F	0.30	0.50			

Top View



ABSOLUTE MAXIMUM RATINGS($T_A=25^{\circ}\text{C}$ UNLESS OTHERWISE NOTED)

Parameter		Symbol	Ratings		Unit		
			N-Channel	P-Channel			
Drain-Source Voltage		V_{DS}	20	-20	V		
Gate-Source Voltage		V_{GS}	±8		V		
Continuous Drain Current ¹	TA=25°C	I_D	4.1	-3.2	A		
	TA=70°C		3.3	-2.6			
Pulsed Drain Current ²		I_{DM}	8	-8	A		
Continuous Source Current (Diode Conduction) ¹		I_S	1.05	-1.05	A		
Power Dissipation ¹	TA=25°C	P_D	1.15		W		
	TA=70°C		0.7				
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 ~ 150		°C		
THERMAL RESISTANCE RATINGS							
Parameter		Symbol	N-Channel		P-Channel		Unit
			Typ.	Max.	Typ.	Max.	
Maximum Junction to Ambient ¹	t ≤ 10 sec	$R_{\theta JA}$	93	110	93	110	°C / W
	Steady State		130	150	130	150	

Notes:

- 1 Surface Mounted on 1" x 1" FR4 Board.
- 2 Pulse width limited by maximum junction temperature.

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions	
Gate-Threshold Voltage	N-Ch	V _{GS(th)}	0.4	-	-	V	V _{DS} =V _{GS} , I _D =250uA	
	P-Ch		-0.4	-	-		V _{DS} =V _{GS} , I _D = -250uA	
Gate-Body Leakage Current	N-Ch	I _{GSS}	-	-	100	uA	V _{DS} =0, V _{GS} =8V	
	P-Ch		-	-	-100		V _{DS} =0, V _{GS} = -8V	
Zero Gate Voltage Drain Current	N-Ch	I _{DSS}	-	-	1	uA	V _{DS} =16 V, V _{GS} =0 V	
	P-Ch		-	-	-1		V _{DS} =-16V, V _{GS} =0 V	
	N-Ch		-	-	10		V _{DS} =16V, V _{GS} =0 V, T _J =55℃	
	P-Ch		-	-	-10		V _{DS} = -16V, V _{GS} =0 V, T _J =55℃	
On-State Drain Current ¹	N-Ch	I _{D(on)}	5	-	-	A	V _{DS} = 5V, V _{GS} =4.5 V	
	P-Ch		-5	-	-		V _{DS} = -5V, V _{GS} = -4.5 V	
Drain-Source On-Resistance ¹	N-Ch	R _{DS(ON)}	-	-	47	mΩ	V _{GS} =4.5V, I _D =4.1A	
	P-Ch		-	-	79		V _{GS} =-4.5V, I _D = -3.2A	
	N-Ch		-	-	55		V _{GS} =2.5V, I _D =3.8A	
	P-Ch		-	-	110		V _{GS} =-2.5V, I _D = -2.7A	
Forward Transconductance ¹	N-Ch	g _{fs}	-	10	-	S	V _{DS} = 5V, I _D = 4.1A	
	P-Ch		-	5	-		V _{DS} = -5V, I _D = -3.2A	
Diode Forward Voltage ¹	N-Ch	V _{SD}	-	0.80	-	S	I _S = 1.05A, V _{GS} =0	
	P-Ch		-	-0.83	-		I _S = -1.05A, V _{GS} =0	
DYNAMIC ²								
Total Gate Charge	N-Ch	Q _g	-	7.5	-	nC	N-Channel V _{DS} =15V, V _{GS} = 4.5V, I _D = 4.1A	
	P-Ch		-	3.8	-			
Gate-Source Charge	N-Ch	Q _{gs}	-	0.6	-		P-Channel V _{DS} = -15V, V _{GS} = -4.5V, I _D = -3.2A	
	P-Ch		-	0.6	-			
Gate-Drain Charge	N-Ch	Q _{gd}	-	1.0	-		nS	N-Channel V _{DD} = 15V, R _{GEN} = 15Ω, V _{GS} = 4.5V, I _D = 1A
	P-Ch		-	1.5	-			
Turn-on Delay Time	N-Ch	T _{d(on)}	-	5	-	P-Channel V _{DD} = -15V, R _{GEN} = 15Ω V _{GS} = -4.5V, I _D = -1A		
	P-Ch		-	5	-			
Rise Time	N-Ch	T _r	-	12	-			
	P-Ch		-	15	-			
Turn-off Delay Time	N-Ch	T _{d(off)}	-	13	-			
	P-Ch		-	20	-			
Fall Time	N-Ch	T _f	-	7	-			
	P-Ch		-	20	-			

Notes

- 1 Pulse test : $PW \leq 300\mu\text{s}$ duty cycle $\leq 2\%$.
- 2 Guaranteed by design, not subject to production testing.