FMP05P30 5.3A 30V P-Channel Enhancement-Mode MOSFET

V_{DS}= -30V

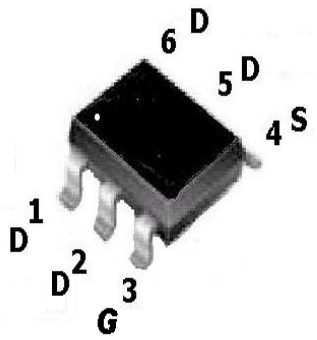
$R_{DS(ON)}$, Vgs@-10V, Ids@-5.3A = 59.4mΩ

$R_{DS(ON)}$, Vgs@-4.5V, Ids@-4.2A = 88mΩ

Features

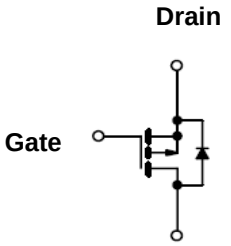
Advanced trench process technology
High Density Cell Design For Ultra Low On-Resistance
Fully Characterized Avalanche Voltage and Current
Improved Shoot-Through FOM

TSOP-6



Top View

Internal Schematic Diagram



P-Channel MOSFET

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

Parameter		Symbol	Limit	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 1)		I_{DM}	-20	
Maximum Power Dissipation	T_A = 25°C	P_D	2.5	W
	T_A = 75°C			
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	°C
Avalanche Energy with Single Pulse I_D=50A, V_{DD}=25V, L=0.5mH		E_{AS}		mJ
Junction-to-Case Thermal Resistance		$R_{\theta JC}$	30	°C/W
Junction-to-Ambient Thermal Resistance (PCB mounted) 2)		$R_{\theta JA}$	50	

Note: 1. Maximum DC current limited by the package
2. 1-in^2 2oz Cu PCB board

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V, I_D = -250uA	-30	-	-	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -4.2A		85.0	88.0	mΩ
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = -10V, I_D = -5.3A		58.2	59.4	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D = -250uA	-1.0		-3.0	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -24V, V_{GS} = 0V			-1	uA
Gate Body Leakage	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			± 100	nA
Gate Resistance	Rg					Ω
Forward Transconductance	g_{fs}	V_{DS} = -15V, I_D = -5.3A	4	7		S
Dynamic						
Total Gate Charge	Q_g	V_{DS} = -15V, I_D = -5.3A V_{GS} = -10V		9.52		nC
Gate-Source Charge	Q_{gs}			3.43		
Gate-Drain Charge	Q_{gd}			1.71		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = -15V, R_L = 15Ω $I_D = -1A$, V_{GEN} = -10V R_G = 6Ω		10.8		ns
Turn-On Rise Time	t_r			2.33		
Turn-Off Delay Time	$t_{d(off)}$			22.53		
Turn-Off Fall Time	t_f			3.87		
Input Capacitance	C_{iss}	V_{DS} = -15V, V_{GS} = 0V f = 1.0 MHz		551.57		pF
Output Capacitance	C_{oss}			90.96		
Reverse Transfer Capacitance	C_{rss}			60.79		
Source-Drain Diode						
Max. Diode Forward Current	I_S				-1.9	A
Diode Forward Voltage	V_{SD}	I_S = -5.3A, V_{GS} = 0V			-1.3	V

Note: Pulse test: pulse width <= 300us, duty cycle<= 2%