FMS55N30 30V N-Channel Enhancement-Mode MOSFET

V_{DS}= 30V

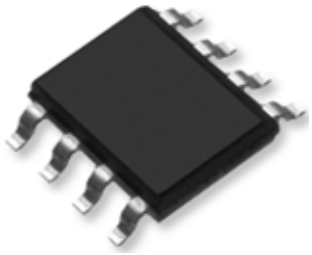
$R_{DS(ON)}$, Vgs@10V, Ids@30A = 7.2mΩ

$R_{DS(ON)}$, Vgs@4.5V, Ids@30A = 9.6mΩ

Features

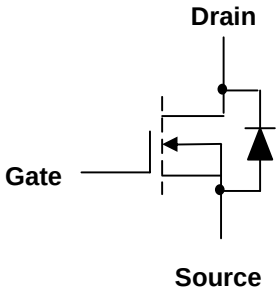
Advanced trench process technology
High Density Cell Design For Ultra Low On-Resistance
Fully Characterized Avalanche Voltage and Current
Improved Shoot-Through FOM

SOP-08



Top View

Internal Schematic Diagram



N-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	55	A
Pulsed Drain Current 1)		I_{DM}	350	
Maximum Power Dissipation	T_A = 25°C	P_D	70	W
	T_A = 75°C		42	
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}	300	mJ
Junction-to-Case Thermal Resistance		$R_{\theta JC}$	1.8	°C/W
Junction-to-Ambient Thermal Resistance (PCB mounted) 2)		$R_{\theta JA}$	40	

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 = 15A		8.0	9.6	mΩ
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 15A		6.0	7.2	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D = 250uA	1	1.8	3	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 25V, 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 = 15A				S
Dynamic						
Total Gate Charge	Q_g	V_{DS} = 15V, I_D = 25A V_{GS} = 10V		26		nC
Gate-Source Charge	Q_{gs}			6		
Gate-Drain Charge	Q_{gd}			5		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 15V, R_L = 15Ω I_D = 1A, V_{GEN} = 10V R_G = 6Ω		17		ns
Turn-On Rise Time	t_r			3.5		
Turn-Off Delay Time	$t_{d(off)}$			40		
Turn-Off Fall Time	t_f			6		
Input Capacitance	C_{iss}	V_{DS} = 15V, V_{GS} = 0V f = 1.0 MHz		2134		pF
Output Capacitance	C_{oss}			343		
Reverse Transfer Capacitance	C_{rss}			134		
Source-Drain Diode						
Max. Diode Forward Current	I_S				20	A
Diode Forward Voltage	V_{SD}	I_S = 20A, V_{GS} = 0V		0.85	1.3	V

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