20V P-Channel Enhancement-Mode MOSFET

V_{DS}= -20V

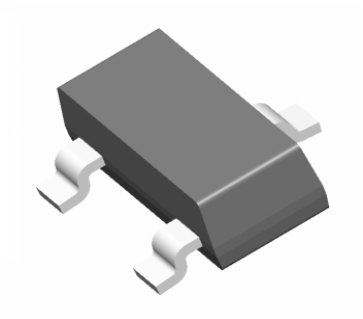
$R_{DS(ON)}$, Vgs@-4.5V, Ids@-2.8A = 100mΩ

$R_{DS(ON)}$, Vgs@-2.5V, Ids@-2.0A = 150mΩ

Features

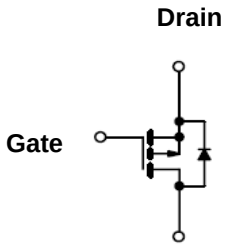
Advanced trench process technology
High Density Cell Design For Ultra Low On-Resistance
Fully Characterized Avalanche Voltage and Current
Improved Shoot-Through FOM

TO-236
(SOT-23)



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}	-20	V
Gate-Source Voltage		V_{GS}	± 8	
Continuous Drain Current		I_D	-2.3	A
Pulsed Drain Current 1)		I_{DM}	-10	
Maximum Power Dissipation	T_A = 25°C	P_D	0.9	W
	T_A = 75°C		0.57	
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		$R_{\theta JC}$		°C/W
Junction-to-Ambient Thermal Resistance (PCB mounted) 2)		$R_{\theta JA}$	145	

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

P-Channel Enhancement-Mode MOSFET

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V, I_D = -10uA	-20	-	-	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -2.8A		69	100	
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = -2.5V, I_D = -2.0A		83	150	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D = -250uA	-0.45		-0.95	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -9.6V, V_{GS} = 0V			-1	uA
Gate Body Leakage	I_{GSS}	V_{GS} = ±8V, V_{DS} = 0V			±100	nA
Gate Resistance	Rg					Ω
Forward Transconductance	g_{fs}	V_{DS} = -5V, I_D = -4.0A		6.5		S
Dynamic						
Total Gate Charge	Q_g	V_{DS} = -6V, I_D = -2.8A V_{GS} = -4.5V		15.23		nC
Gate-Source Charge	Q_{gs}			5.49		
Gate-Drain Charge	Q_{gd}			2.74		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = -6V, R_L = 6Ω $I_D = -1A$, V_{GEN} = -4.5V R_G = 6Ω		17.28		ns
Turn-On Rise Time	t_r			3.73		
Turn-Off Delay Time	$t_{d(off)}$			36.05		
Turn-Off Fall Time	t_f			6.19		
Input Capacitance	C_{iss}	V_{DS} = -6V, V_{GS} = 0V f = 1.0 MHz		882.51		pF
Output Capacitance	C_{oss}			145.54		
Reverse Transfer Capacitance	C_{rss}			97.26		
Source-Drain Diode						
Max. Diode Forward Current	I_S				-2.4	A
Diode Forward Voltage	V_{SD}	I_S = -1.6A, V_{GS} = 0V		-0.8	-1.2	V

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