



## 30V N-Channel Enhancement-Mode MOSFET

$V_{DS} = 30V$

$R_{DS(ON), V_{GS}@10V, I_{DS}@5.8A} = 28m\Omega$

$R_{DS(ON), V_{GS}@4.5V, I_{DS}@5A} = 33m\Omega$

$R_{DS(ON), V_{GS}@2.5V, I_{DS}@5A} = 52m\Omega$

### Features

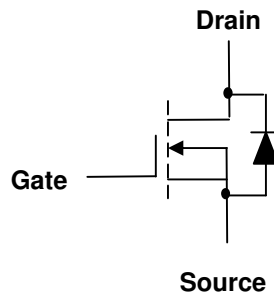
Advanced trench process technology  
 High Density Cell Design For Ultra Low On-Resistance  
 Fully Characterized Avalanche Voltage and Current  
 Suitable for use as a load switch or in PWM application

SOT-23



Top View

Internal Schematic Diagram



N-Channel MOSFET

### Maximum Ratings and Thermal Characteristics ( $T_A = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	$V_{DS}$	30	V	
Gate-Source Voltage	$V_{GS}$	$\pm 12$		
Continuous Drain Current	$I_D$	6	A	
Pulsed Drain Current <sup>1)</sup>	$I_{DM}$	30		
Maximum Power Dissipation	$P_D$	$T_A = 25^\circ C$	2.0	W
		$T_A = 75^\circ C$	1.3	
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to 150	$^\circ C$	
Junction-to-Ambient Thermal Resistance (PCB mounted) <sup>2)</sup>	$R_{\theta JA}$	62.5	$^\circ C/W$	

Note: 1. Maximum DC current limited by the package

2. 1-in<sup>2</sup> 2oz Cu PCB board

**N-Channel Enhancement-Mode MOSFET  
ELECTRICAL CHARACTERISTICS**

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30	-	-	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS} = 2.5V, I_D = 5A$		43	52	mΩ
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 5A$		27	33	
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 5.8A$		24	28	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.6	0.8		V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 25V, V_{GS} = 0V$			1	μA
Gate Body Leakage	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
Gate Resistance	$R_g$			0.6		Ω
Forward Transconductance	$g_{fs}$	$V_{DS} = 15V, I_D = 15A$	7	13		S
<b>Dynamic</b>						
Total Gate Charge	$Q_g$	$V_{DS} = 10V, I_D = 6A$ $V_{GS} = 6.9V$		5		nC
Gate-Source Charge	$Q_{gs}$			0.9		
Gate-Drain Charge	$Q_{gd}$			1.4		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 15V, R_L = 2.2\Omega$ $I_D = 1A, V_{GEN} = 10V$ $R_G = 3\Omega$		8.1		ns
Turn-On Rise Time	$t_r$			9.95		
Turn-Off Delay Time	$t_{d(off)}$			21.85		
Turn-Off Fall Time	$t_f$			5.35		
Input Capacitance	$C_{iss}$	$V_{DS} = 15V, V_{GS} = 0V$ $f = 1.0\text{ MHz}$		562		pF
Output Capacitance	$C_{oss}$			106		
Reverse Transfer Capacitance	$C_{rss}$			75		
<b>Source-Drain Diode</b>						
Max. Diode Forward Current	$I_S$				1.7	A
Diode Forward Voltage	$V_{SD}$	$I_S = 1A, V_{GS} = 0V$			1.2	V

Note: Pulse test: pulse width ≤ 300μs, duty cycle ≤ 2%

