



SUD50N03-09P vs. SUD50N03-10

Description: N-Channel, 30 V (D-S) MOSFET
Package: TO-252
Pin Out: Identical

Part Number Replacements

SUD50N03-09P-E3 Replaces SUD50N03-10-E3

SUD50N03-09P Replaces SUD50N03-10

ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ }^\circ\text{C}$, unless otherwise noted)				
Parameter	Symbol	SUD50N03-09P	SUD50N03-10	Unit
Drain-Source Voltage	V_{DS}	30	30	V
Gate-Source Voltage	V_{GS}	± 20	± 20	
Continuous Drain Current	I_D	$T_A = 25\text{ }^\circ\text{C}$	NS	A
		$T_A = 100\text{ }^\circ\text{C}$	NS	
		$T_C = 25\text{ }^\circ\text{C}$	63	
		$T_C = 100\text{ }^\circ\text{C}$	44.5	
Pulsed Drain Current	I_{DM}	50	100	
Continuous Source Current (MOSFET Diode Conduction)	I_S	10	15	
Power Dissipation	P_D	$T_A = 25\text{ }^\circ\text{C}$	7.5	W
		$T_C = 25\text{ }^\circ\text{C}$	65.2	
Operating Junction and Storage Temperature Range	T_j and T_{stg}	- 55 to 175	- 55 to 175	$^\circ\text{C}$
Maximum Junction-to-Ambient	R_{thJA}	20	30	$^\circ\text{C/W}$

SPECIFICATIONS ($T_J = 25\text{ }^\circ\text{C}$, unless otherwise noted)								
Parameter	Symbol	SUD50N03-09P			SUD50N03-10			Unit
		Min	Typ	Max	Min	Typ	Max	
Static								
Gate-Threshold Voltage	$V_{GS(th)}$	1		3	1	2		V
Gate-Body Leakage	I_{GSS}			± 100			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}			1			1	μA
On-State Drain Current	$V_{GS} = 10\text{ V}$ $I_{D(on)}$	50			50			A
Drain-Source On-Resistance	$V_{GS} = 10\text{ V}$ $r_{DS(on)}$		0.0076	0.0095			0.010	Ω
	$V_{GS} = 4.5\text{ V}$		0.0115	0.014			0.019	
Forward Transconductance	g_{fs}	20			20			S
Diode Forward Voltage	V_{SD}		1.2	1.5		1.2	1.5	V
Dynamic								
Total Charge	Q_g^1		11	16		55	100	nC
Gate-Source Charge	Q_{gs}		7.5			10		
Gate-Drain Charge	Q_{gd}		5.0			9		
Gate Resistance	R_g	0.5	1.5	2.1		NS		
Switching								
Turn-On Time	$t_{d(on)}$		9	15		16	30	ns
	t_r		80	120		8	20	
Turn-Off Time	$t_{d(off)}$		22	35		33	60	
	t_f		8	12		20	40	
Source-Drain Reverse Recovery Time	t_{rr}		35	70		55	100	

NS denotes parameter not specified

1. For the SUD50N03-09P, $V_{GS} = 4.5\text{ V}$, for SUD50N03-10, $V_{GS} = 10\text{ V}$.

Specification comparisons are supplied as a courtesy to compare two devices and do not constitute a commercial product datasheet or any guarantee of identical performance. Designers should refer to the appropriate datasheets of the same number for guaranteed specification limits.