SUD50N03-09P vs. SUD50N03-10P

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

Part Number Replacements

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

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C, unless otherwise noted)					
Parameter		**Symbol**	**SUD50N03-09P**	**SUD50N03-10P**	**Unit**
Drain-Source Voltage		V_{DS}	30	30	V
Gate-Source Voltage		V_{GS}	± 20	± 20	
Continuous Drain Current	T_C = 25 °C	I_D	63	50	A
	T_C = 100 °C		44.5	40	
Pulsed Drain Current		I_{DM}	50	180	
Continuous Source Current (MOSFET Diode Conduction)		I_S	10	50	
Power Dissipation	T_A = 25 °C	P_D	7.5	5	W
	T_C = 25 °C		65.2	65	
Operating Junction and Storage Temperature Range		T_j and T_{stg}	- 55 to 175	- 55 to 175	°C
Maximum Junction-to-Ambient		R_{thJA}	20	30	°C/W

SPECIFICATIONS (T_J = 25 °C, unless otherwise noted)									
Parameter		**Symbol**	**SUD50N03-09P**			**SUD50N03-10P**			**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 V	$I_{D(on)}$	50			50			A
Drain-Source On-Resistance	V_{GS} = 10 V	$r_{DS(on)}$		0.0076	0.0095		0.0075	0.010	Ω
	V_{GS} = 4.5 V			0.0115	0.014		0.011	0.015	
Forward Transconductance		g_{fs}	20			20	40		S
Diode Forward Voltage		V_{SD}		1.2	1.5		1.2	1.5	V
Dynamic									
Total Charge		Q_g[1]		11	16		45	70	nC
Gate-Source Charge		Q_{gs}		7.5			8.5		
Gate-Drain Charge		Q_{gd}		5.0			9.5		
Gate Resistance		R_g	0.5	1.5	2.1		NS		Ω
Switching									
Turn-On Time		$t_{d(on)}$		9	15		12	20	ns
		t_r		80	120		7	15	
Turn-Off Time		$t_{d(off)}$		22	35		35	60	
		t_f		8	12		12	20	
Source-Drain Reverse Recovery Time		t_{rr}		35	70		40	80	

NS denotes parameter not specified

1. For SUD50N03-09P, V_{GS} = 4.5 V. For SUD50N03-10P, V_{GS} = 10 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.