



SUD50N03-09P vs. SUD50N03-10BP

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

Part Number Replacements

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

ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ }^\circ\text{C}$, unless otherwise noted)				
Parameter	Symbol	SUD50N03-09P	SUD50N03-10BP	Unit
Drain-Source Voltage	V_{DS}	30	30	V
Gate-Source Voltage	V_{GS}	± 20	± 20	
Continuous Drain Current	$T_A = 25\text{ }^\circ\text{C}$	NS	20	A
	$T_A = 100\text{ }^\circ\text{C}$	NS	14	
	$T_C = 25\text{ }^\circ\text{C}$	63	NS	
	$T_C = 100\text{ }^\circ\text{C}$	44.5	NS	
Pulsed Drain Current	I_{DM}	50	100	
Continuous Source Current (MOSFET Diode Conduction)	I_S	10	20	
Power Dissipation	$T_A = 25\text{ }^\circ\text{C}$	7.5	8.3	W
	$T_C = 25\text{ }^\circ\text{C}$	65.2	71	
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	18	$^\circ\text{C/W}$

SPECIFICATIONS ($T_J = 25\text{ }^\circ\text{C}$, unless otherwise noted)								
Parameter	Symbol	SUD50N03-09P			SUD50N03-10BP			Unit
		Min	Typ	Max	Min	Typ	Max	
Static								
Gate-Threshold Voltage	$V_{GS(th)}$	1		3	0.8	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		0.0075	0.010	Ω
	$V_{GS} = 4.5\text{ V}$		0.0115	0.014		0.011	0.014	
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		15.5	19	nC
Gate-Source Charge	Q_{gs}		7.5			5		
Gate-Drain Charge	Q_{gd}		5.0			6		
Gate Resistance	R_g	0.5	1.5	2.1	0.5		4.1	Ω
Switching								
Turn-On Time	$t_{d(on)}$		9	15		10	18	ns
	t_r		80	120		8	15	
Turn-Off Time	$t_{d(off)}$		22	35		25	45	
	t_f		8	12		9	16	
Source-Drain Reverse Recovery Time	t_{rr}		35	70		30	60	

NS denotes parameter not specified

1. For the SUD50N03-09P, $V_{GS} = 4.5\text{ V}$, for SUD50N03-10BP, $V_{GS} = 5\text{ V}$.

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.