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RFH45N05, RFH45N06

Power MOS Field-Effect Transistors

N-Channel Enhancement-Mode Power Field-Effect Transistors

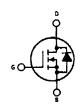
45 A, 50 V - 60 V

 $r_{DS(on)} = 0.040 \Omega$

Features:

- SOA is power-dissipation limited
- Nanosecond switching speeds
- Linear transfer characteristics
- High input impedance
 Majority carrier device
- High-current, low-inductance package

TERMINAL DIAGRAM

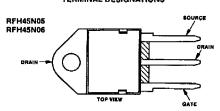


N-CHANNEL ENHANCEMENT MODE

The RFH45N05 and RFH45N06* are n-channel enhancement-mode silicon-gate power field-effect transistors designed for applications such as switching regulators, switching converters, motor drivers, relay drivers, and drivers for high-power bipolar switching transistors requiring high speed and low gate-drive power. These types can be operated directly from integrated circuits.

The RFH-types are supplied in the JEDEC TO-218AC plastic package.

TERMINAL DESIGNATIONS



JEDEC TO-218AC

MAXIMUM RATINGS, Absolute-Maximum Values (Tc = 25° C):

		RFH45N05	RFH45N06	
DRAIN-SOURCE VOLTAGE	/ _{DSS}	50	60	v
DRAIN-GATE VOLTAGE, R _{gs} = 1 MΩ		50	60	V
GATE-SOURCE VOLTAGE	Vos	±20		٧
DRAIN CURRENT, RMS Continuous	lp	4	5	Α
Pulsed	. I _{DM}	1	00	Α
POWER DISSIPATION @ Tc = 25°C	. Рт	1	50	W
			.2	
OPERATING AND STORAGE TEMPERATURE	Teto		+150	°C

NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

RFH45N05, RFH45N06

ELECTRICAL CHARACTERISTICS, at Case Temperature (Tc) = 25°C unless otherwise specified.

CHARACTERISTIC	SYMBOL	TEST CONDITIONS					
			RFH45N05		RFH45N06		UNITS
			Min.	Max.	Min.	Max.	7
Drain-Source Breakdown Voltage	BVoss	I _D = 1 mA V _{GS} = 0	50	_	60		V
Gate Threshold Voltage	V _{GS} (th)	Vas = V _{DS} I _D = 1 mA	2	4	2	4	V
Zero Gate Voltage Drain Current	loss	V _{DS} = 40 V V _{DS} = 50 V	<u> </u>	1		_ 1	
		T _C = 125° C V _{DS} = 40 V V _{DS} = 50 V	_	50	_	 	μΑ
Gate-Source Leakage Current	lass	V ₀₈ = 50 V V ₀₈ = ± 20 V V ₀₈ = 0	_	100	-	100	nA
Drain-Source On Voltage	V _{DS} (on) ⁸	I _D = 22.5 A V _{GS} = 10 V	_	0.9	-	0.9	V
		I _D = 45 A V _{GS} = 10 V	_	3.6	_	3.6]
Static Drain-Source On Resistance	ros(on)ª	I _D = 22.5 A V _{GS} = 10 V	_	.04	_	.04	Ω
Forward Transconductance	g _{i•} a	V _{DS} = 10 V I _D = 22.5 A	10	_	10		mho
Input Capacitance	Ciss	V ₀₈ = 25 V		3000	_	3000	
Output Capacitance	Coss	V ₀₈ = 0 V		1800	-	1800	ρF
Reverse Transfer Capacitance	Cras	f = 1MHz		750	-	750	7
Turn-On Delay Time	t₄(on)	V _{DS} = 30 V	40(typ)	80	40(typ)	80	1
Rise Time	t,	l _D = 22.5 A	310(typ)	475	310(typ)	475	7
Turn-Off Delay Time	t _d (off)	R _{gen} =R _{gs} =50Ω	220(typ)	350	220(typ)	350	ns
Fall Time	t _f	Vas = 10 V	240(typ)	375	240(typ)	375	7
Thermal Resistance Junction-to-Case	R <i>θ</i> ₃c	RFH45N05, RFH45N06 Series	_	0.83		0.83	°C/W

[■]Pulsed: Pulse duration = 300 µs max., duty cycle = 2%.

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

		• 1	LIMITS				
CHARACTERISTIC		TEST CONDITIONS	RFH45N05		RFH45N06		UNITS
			Min.	Max.	Min.	Max.	
Diode Forward Voltage	V _{SO} *	f ₈₀ = 22.5A	_	1.4	_	1.4	v
Reverse Recovery Time	1 _{rr}	i _F = 4A, d _{iF} /d _i = 100 A/μs	150 (typ.)		150 (typ.)		ns

^{*} Pulse Test: Width ≤ 300 μs, Duty cycle ≤ 2%.