

2N6764

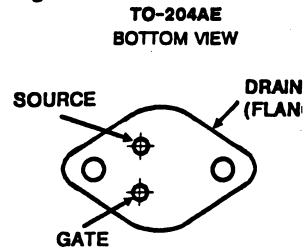
N-Channel Enhancement-Mode Power MOS Field-Effect Transistors

Absolute Maximum Ratings (T_C = +25°C) Unless Otherwise Specified

	2N6764	UNITS
Drain-Source Voltage	100*	V
Drain-Gate Voltage (R _{GS} = 20kΩ)	100*	V
Continuous Drain Current		
T _C = +25°C	38	A
T _C = +100°C	24	A
Pulsed Drain Current	70	A
Gate-Source Voltage	±20*	V
Maximum Power Dissipation		
T _C = +25°C (See Figure 11)	150*	W
T _C = +100°C (See Figure 11)	60*	W
Linear Derating Factor (See Figure 11)	1.2	W/°C
Inductive Current, Clamped (See Figures 1 and 2, L = 100μH)	70	A
Operating and Storage Junction Temperature Range	-55 to +150*	°C
Maximum Lead Temperature for Soldering (0.063" (1.6mm) from case for 10s)	300*	°C

*JEDEC registered values

Package



ELECTRICAL CHARACTERISTICS @ T_C = 25°C (Unless Otherwise Specified)

Parameter	Type	Min.	Typ.	Max.	Units	Test Conditions
BV _{DSS} Drain - Source Breakdown Voltage	2N6764	100	-	-	V	V _{GS} = 0 I _D = 1.0 mA
	ALL	2.0*	-	4.0*	V	V _{DS} = V _{GS} , I _D = 1 mA
I _{GSSF} Gate - Body Leakage Forward	ALL	-	-	100*	nA	V _{GS} = 20V
I _{GSSR} Gate - Body Leakage Reverse	ALL	-	-	100*	nA	V _{GS} = -20V
I _{DSS} Zero Gate Voltage Drain Current	ALL	-	0.1	1.0*	mA	V _{DS} = Max. Rating, V _{GS} = 0
	ALL	-	0.2	4.0*	mA	V _{DS} = Max. Rating, V _{GS} = 0, T _C = 125°C
V _{DS(on)} Static Drain-Source On-State Voltage ①	2N6764	-	-	2.09*	V	V _{GS} = 10V, I _D = 38A
	ALL	-	0.045	0.055*	Ω	V _{GS} = 10V, I _D = 24A
R _{DS(on)} Static Drain-Source On-State Resistance ①	2N6764	-	-	0.084*	Ω	V _{GS} = 10V, I _D = 24A, T _C = 125°C
	ALL	9.0*	12.5	27*	S (U)	V _{DS} = 15V, I _D = 24A
C _{iss} Input Capacitance	ALL	1000*	2000	3000*	pF	V _{GS} = 0, V _{DS} = 25V, f = 1.0 MHz
C _{oss} Output Capacitance	ALL	500*	1000	1500*	pF	See Fig. 10
C _{rss} Reverse Transfer Capacitance	ALL	150*	350	500*	pF	
t _{d(on)} Turn-On Delay Time	ALL	-	-	35*	ns	V _{DD} ≅ 24V, I _D = 24A, Z ₀ = 4.7Ω
t _r Rise Time	ALL	-	-	100*	ns	(See Figs. 13 and 14)
t _{d(off)} Turn-Off Delay Time	ALL	-	-	125*	ns	(MOSFET switching times are essentially independent of operating temperature.)
t _f Fall Time	ALL	-	-	100*	ns	

THERMAL RESISTANCE

Parameter	Value	Units	Notes
R _{thJC} Junction-to-Case	0.83*	°C/W	
R _{thCS} Case-to-Sink	0.1	°C/W	Mounting surface flat, smooth, and greased.
R _{thJA} Junction-to-Ambient	30	°C/W	Free Air Operation

BODY-DRAIN DIODE RATINGS AND CHARACTERISTICS

Parameter	Value	Units	Notes
I _S Continuous Source Current (Body Diode)	38*	A	Modified MOSFET symbol showing the integral reverse P-N junction rectifier.
I _{SM} Pulsed Source Current (Body Diode)	70	A	
V _{SD} Diode Forward Voltage ①	0.90*	V	T _C = 25°C, I _S = 31A, V _{GS} = 0
	1.8*	V	T _C = 25°C, I _S = 38A, V _{GS} = 0
t _{rr} Reverse Recovery Time	500	ns	T _J = 150°C, I _F = I _{SM} , dI _F /dt = 100 A/μs
Q _{RR} Reverse Recovered Charge	10	μC	T _J = 150°C, I _F = I _{SM} , dI _F /dt = 100 A/μs

*JEDEC registered values. ① Pulse Test: Pulse Width < 300 μsec, Duty Cycle < 2%