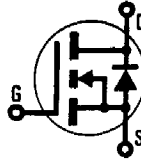


**N-CHANNEL
 POWER MOSFETs**



2N6788

Absolute Maximum Ratings

Parameter	2N6788	Units
V _{DS} Drain - Source Voltage (1)	100*	V
V _{DGR} Drain - Gate Voltage (R _{GS} = 20 KΩ) (1)	100*	V
I _D @ T _C = 25°C Continuous Drain Current	6.0*	A
I _D @ T _C = 100°C Continuous Drain Current	3.5*	A
I _{DM} Pulsed Drain Current (3)	24*	A
V _{GS} Gate - Source Voltage	±20*	V
I _S Continuous Source Current (Body Diode)	6.0*	A
I _{SM} Pulse Source Current (Body Diode) (3)	24*	A
P _D @ T _C = 25°C Max. Power Dissipation	20* (See Fig. 14)	W
Linear Derating Factor	0.16* (See Fig. 14)	WK
I _{LM} Inductive Current, Clamped	L = 100μH 24	A
T _J Operating Junction and Storage Temperature Range	-55° to 150°	°C
T _{lgg} Lead Temperature	300* (0.063 in. (1.6mm) from case for 10s)	°C

Electrical Characteristics @ T_C = 25°C (Unless Otherwise Specified)

Parameter	Min.	Typ.	Max.	Units	Test Conditions
BV _{DSS} Drain - Source Breakdown Voltage	100*	—	—	V	V _{GS} = 0V, I _D = 0.25 mA
V _{GS(th)} Gate Threshold Voltage	2.0*	—	4.0*	V	V _{DS} = V _{GS} , I _D = 1.0 mA
I _{GSS} Gate - Source Leakage Forward	—	—	100*	nA	V _{GS} = 20V, V _{DS} = 0V
I _{GSS} Gate - Source Leakage Reverse	—	—	100*	nA	V _{GS} = -20V, V _{DS} = 0V
I _{DSS} Zero Gate Voltage Drain Current	—	—	250*	μA	V _{DS} = 100V, V _{GS} = 0V
V _{DS(on)} On-State Voltage (2)	—	—	2.10*	V	V _{GS} = 10V, I _D = 6.0A
R _{DSON} Static Drain-Source On-State Resistance (2)	—	0.25	0.30*	Ω	V _{GS} = 10V, I _D = 3.5A, T _A = 25°C
V _{SD} Diode Forward Voltage (2)	0.8*	—	1.8*	V	T _C = 25°C, I _S = 6.0A, V _{GS} = 0V
g _{fs} Forward Transconductance (2)	1.5*	2.9	4.5*	S(Ω)	V _{DS} = 6V, I _D = 3.5A
C _{iss} Input Capacitance	200*	450	600*	pF	V _{GS} = 0V, V _{DS} = 25V, f = 1.0 MHz
C _{oss} Output Capacitance	100*	200	400*	pF	See Fig. 10
C _{rss} Reverse Transfer Capacitance	20*	50	100*	pF	
t _{d(on)} Turn-On Delay Time	—	—	40*	ns	V _{DD} = 35V, I _D = 3.5A, Z _θ = 500
t _r Rise Time	—	—	70*	ns	See Fig. 15
t _{d(off)} Turn-Off Delay Time	—	—	40*	ns	(MOSFET switching times are essentially independent of operating temperature.)
t _f Fall Time	—	—	70*	ns	
SOA Safe Operating Area	20	—	—	W	V _{DS} = 80V, I _D = 250 mA, See Fig. 16.
	20	—	—	W	V _{DS} = 3.3V, I _D = 60A, See Fig. 16.

Thermal Resistance

R _{thJC} Junction-to-Case	—	—	6.25*	K/W	
R _{thJA} Junction-to-Ambient	—	—	175	K/W	Free Air Operation

Source-Drain Diode Switching Characteristics (Typical)

t _{rr} Reverse Recovery Time	230	ns	T _J = 150°C, I _F = 6.0A, di _F /dt = 100A/μs
Q _{RR} Reverse Recovered Charge	1.2	μC	T _J = 150°C, I _F = 6.0A, di _F /dt = 100A/μs
t _{on} Forward Turn-on Time	Intrinsic turn-on time is negligible. Turn-on speed is substantially controlled by L _S + L _D .		

- ① T_J = 25°C to 150°C. ② Pulse Test: Pulse width < 300μs, Duty Cycle < 2%. ③ Repetitive Rating: Pulse width limited by max. junction temperature.

