

MOS FIELD EFFECT TRANSISTOR 2SK2826

SWITCHING N-CHANNEL POWER MOS FET INDUSTRIAL USE

DESCRIPTION

This product is N-Channel MOS Field Effect Transistor designed for high current switching applications.

FEATURES

- Super Low On-State Resistance $R_{DS(on)1} = 6.5 \text{ m}\Omega \text{ (MAX.)} (V_{GS} = 10 \text{ V}, \text{ ID} = 35 \text{ A})$ $R_{DS(on)2} = 9.7 \text{ m}\Omega \text{ (MAX.)} (V_{GS} = 4.0 \text{ V}, \text{ ID} = 35 \text{ A})$
- Low Ciss : Ciss = 7200 pF (TYP.)
- Built-in Gate Protection Diode

ABSOLUTE MAXIMUM RATINGS (TA = 25 °C)

Drain to Source Voltage (Vgs = 0 V)	VDSS	60	V
Gate to Source Voltage ($V_{DS} = 0 V$)	VGSS(AC)	±20	V
Gate to Source Voltage (VDS = 0 V)	VGSS(DC)	+20, -10	V
Drain Current (DC)	ID(DC)	±70	А
Drain Current (Pulse) ^{Note1}	D(pulse)	±280	А
Total Power Dissipation (Tc = 25°C)	P⊤	100	W
Total Power Dissipation (TA = 25°C)	P⊤	1.5	W
Channel Temperature	Tch	150	°C
Storage Temperature	Tstg	–55 to + 150	°C
Single Avalanche Current Note2	AS	70	Α
Single Avalanche Energy ^{Note2}	Eas	490	mJ

Notes 1. PW \leq 10 μ s, Duty cycle \leq 1 %

2. Starting Tch = 25 °C, R_A = 25 Ω , V_{GS} = 20 V \rightarrow 0 V

THERMAL RESISTANCE

Channel to Case	Rth(ch-C)	1.25	°C/W
Channel to Ambient	Rth(ch-A)	83.3	°C/W

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ORDERING INFORMATION

PART NUMBER	PACKAGE	
2SK2826	TO-220AB	
2SK2826-S	TO-262	
2SK2826-ZJ	TO-263	

CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Drain to Source On-state Resistance	RDS(on)1	Vgs = 10 V, Id = 35 A		5.5	6.5	mΩ
	RDS(on)2	Vgs = 4.0 V, Id = 35 A		7.0	9.7	mΩ
Gate to Source Cut-off Voltage	VGS(off)	Vds = 10 V, Id = 1 mA	1.0	1.5	2.0	V
Forward Transfer Admittance	y _{fs}	Vds = 10 V, Id = 35 A	20	94		S
Drain Leakage Current	IDSS	Vds = 60 V, Vgs = 0 V			10	μA
Gate to Source Leakage Current	lgss	$V_{GS} = \pm 20 \text{ V}, \text{ V}_{DS} = 0 \text{ V}$			±10	μA
Input Capacitance	Ciss	V _{DS} = 10 V		7200		pF
Output Capacitance	Coss	Vgs = 0 V		2000		pF
Reverse Transfer Capacitance	Crss	f = 1 MHz		700		pF
Turn-on Delay Time	td(on)	ID = 35 A		100		ns
Rise Time	tr	VGS(on) = 10 V		1200		ns
Turn-off Delay Time	td(off)	$V_{DD} = 30 V$		440		ns
Fall Time	tr	Rg = 10 Ω		520		ns
Total Gate Charge	QG	ID = 70 A		150		nC
Gate to Source Charge	Q _{GS}	Vdd = 48 V		20		nC
Gate to Drain Charge	Qgd	V _{GS} = 10 V		40		nC
Body Diode Forward Voltage	VF(S-D)	IF = 70 A, VGS = 0 V		0.97		V
Reverse Recovery Time	trr	IF = 70 A, VGS = 0 V		80		ns
Reverse Recovery Charge	Qrr	di/dt = 100A/µ s		250		nC

25 °C)

TEST CIRCUIT 1 AVALANCHE CAPABILITY



TEST CIRCUIT 3 GATE CHARGE





TEST CIRCUIT 2 SWITCHING TIME



TYPICAL CHARACTERISTICS (TA = 25 °C)







FORWARD TRANSFER CHARACTERISTICS





DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE





NEC







Starting Tch - Starting Channel Temperature - °C

PACKAGE DRAWINGS (Unit : mm)

1)TO-220AB (MP-25)



2)TO-262 (MP-25 Fin Cut)



3)TO-263 (MP-25ZJ)



EQUIVALENT CIRCUIT



Remark The diode connected between the gate and source of the transistor serves as a protector against ESD. When this device actually used, an additional protection circuit is externally required if a voltage exceeding the rated voltage may be applied to this device.

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