

MOS FIELD EFFECT TRANSISTOR **2SK3467**

SWITCHING N-CHANNEL POWER MOS FET INDUSTRIAL USE

DESCRIPTION

The 2SK3467 is N-Channel MOS FET device that features a low on-state resistance and excellent switching characteristics, designed for low voltage high current applications such as DC/DC converter with synchronous rectifier.

ORDERING INFORMATION

PART NUMBER	PACKAGE			
2SK3467	TO-220AB			
2SK3467-ZK	TO-263(MP-25ZK)			

FEATURES

- 4.5 V drive available
- Low on-state resistance $R_{DS(on)1} = 6.0 \text{ m}\Omega$ MAX. (Vgs = 10 V, Ip = 40 A)
- Low gate charge
 Q_G = 55 nC TYP. (I_D = 80 A, V_{DD} = 16 V, V_{GS} = 10 V)
- Built-in gate protection diode
- Surface mount device available

(TO-220AB)



ABSOLUTE MAXIMUM RATINGS (TA = 25°C)

Drain to Source Voltage (Vgs = 0 V)	VDSS	20	V
Gate to Source Voltage (Vps = 0 V)	Vgss	±20	V
Drain Current (DC) (Tc = 25°C)	I _{D(DC)}	±80	Α
Drain Current (Pulse) Note	D(pulse)	±320	Α
Total Power Dissipation (T _A = 25°C)	P _{T1}	1.5	W
Total Power Dissipation (Tc = 25°C)	P _{T2}	76	W
Channel Temperature	Tch	150	°C
Storage Temperature	Tstg	-55 to +150	°C

Note PW \leq 10 μ s, Duty Cycle \leq 1%

(TO-263)



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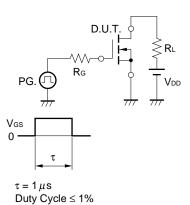
Not all devices/types available in every country. Please check with local NEC representative for availability and additional information.

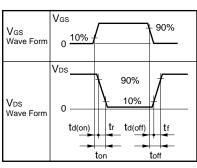


ELECTRICAL CHARACTERISTICS(TA = 25°C)

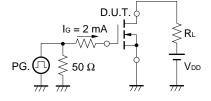
CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Zero Gate voltage Drain Current	Ioss	V _{DS} = 20 V, V _{GS} = 0 V			10	μΑ
Gate Leakage Current	Igss	Vgs = ±20 V, Vps = 0 V			±10	μΑ
Gate Cut-off Voltage	V _{GS(off)}	V _{DS} = 10 V, I _D = 1 mA	1.5		2.5	V
Forward Transfer Admittance	yfs	V _{DS} = 10 V, I _D = 40 A	20			S
Drain to Source On-state Resistance	RDS(on)1	Vgs = 10 V, ID = 40 A		4.8	6.0	mΩ
	RDS(on)2	Vgs = 4.5 V, ID = 40 A		6.7	9.5	mΩ
Input Capacitance	Ciss	Vps = 10 V		2800		pF
Output Capacitance	Coss	Vgs = 0 V		1200		pF
Reverse Transfer Capacitance	Crss	f = 1 MHz		600		pF
Turn-on Delay Time	t _{d(on)}	V _{DD} = 10 V , I _D = 40 A		16		ns
Rise Time	tr	V _{GS(on)} = 10 V		23		ns
Turn-off Delay Time	td(off)	$R_G = 10 \Omega$		74		ns
Fall Time	tr			31		ns
Total Gate Charge	Q _G	V _{DD} = 16 V		55		nC
Gate to Source Charge	Q _{GS}	Vgs = 10 V		9		nC
Gate to Drain Charge	Q _{GD}	ID = 80 A		17		nC
Body Diode Forward Voltage	V _{F(S-D)}	IF = 80 A, VGS = 0 V		1.0		V
Reverse Recovery Time	trr	IF = 80 A, VGS = 0 V		44		ns
Reverse Recovery Charge	Qrr	di/dt = 100 A/μs		40		nC

TEST CIRCUIT 1 SWITCHING TIME

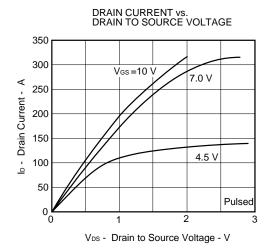


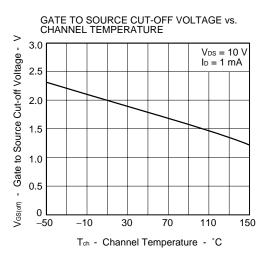


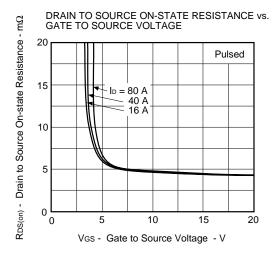
TEST CIRCUIT 2 GATE CHARGE



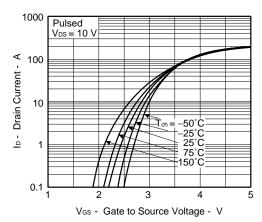
TYPICAL CHARACTERISTICS (TA = 25°C)



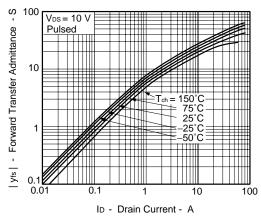


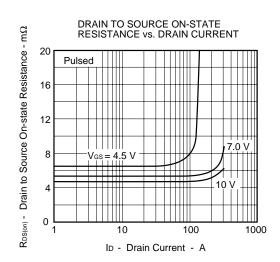


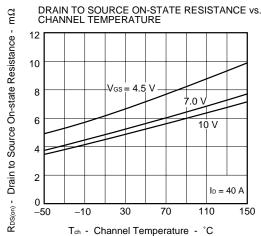
FORWARD TRANSFER CHARACTERISTICS



FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT

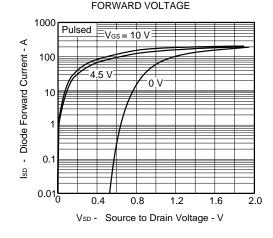




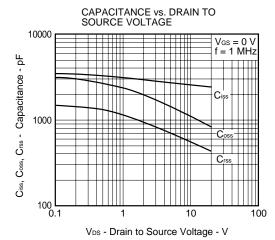




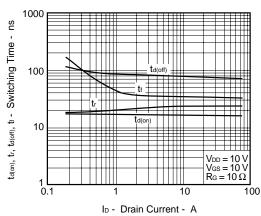
SWITCH



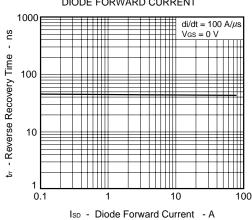
SOURCE TO DRAIN DIODE



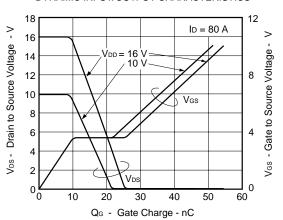
SWITCHING CHARACTERISTICS

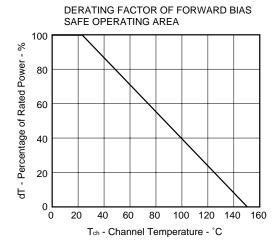


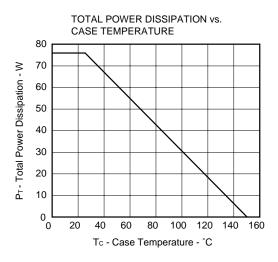
REVERSE RECOVERY TIME vs. DIODE FORWARD CURRENT



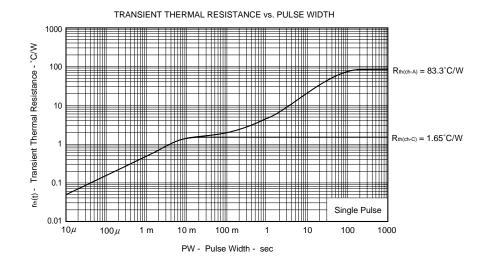
DYNAMIC INPUT/OUTPUT CHARACTERISTICS







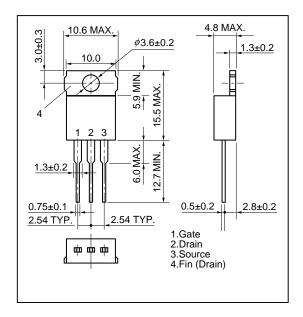
Vps - Drain to Source Voltage - V



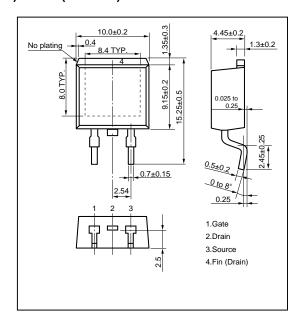
5

PACKAGE DRAWINGS (Unit: mm)

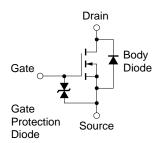
1)TO-220AB (MP-25)



2)TO-263 (MP-25ZK)



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.

2SK3467



[MEMO]

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