

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 $R_{DS(on)1} = 6.0 \ m\Omega \ MAX. \ (V_{GS} = 10 \ V, \ I_{D} = 40 \ A)$
- 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

ABSOLUTE MAXIMUM RATINGS (TA = 25°C)

Drain to Source Voltage (VGS = 0 V)	VDSS	20	V
Gate to Source Voltage ($V_{DS} = 0 V$)	Vgss	±20	V
Drain Current (DC) (Tc = 25°C)	ID(DC)	±80	А
Drain Current (Pulse) Note	D(pulse)	±320	А
Total Power Dissipation (T _A = 25°C)	PT1	1.5	W
Total Power Dissipation (Tc = 25°C)	Pt2	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-220AB)



(TO-263)

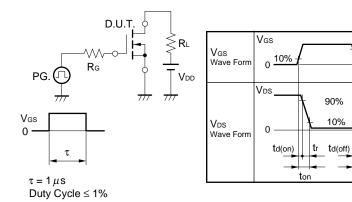


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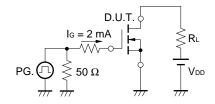
ELECTRICAL CHARACTERISTICS($T_A = 25^{\circ}C$)

CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Zero Gate voltage Drain Current	IDSS	V _{DS} = 20 V, V _{GS} = 0 V			10	μA
Gate Leakage Current	lgss	$V_{GS} = \pm 20 \text{ V}, \text{ V}_{DS} = 0 \text{ V}$			±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	y _{fs}	Vds = 10 V, Id = 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	V _{DS} = 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	td(on)	$V_{DD} = 10 \text{ V}$, $I_D = 40 \text{ A}$		16		ns
Rise Time	tr	$V_{GS(on)} = 10 V$		23		ns
Turn-off Delay Time	td(off)	R _G = 10 Ω		74		ns
Fall Time	tr			31		ns
Total Gate Charge	QG	Vdd = 16 V		55		nC
Gate to Source Charge	Q _{GS}	Vgs = 10 V		9		nC
Gate to Drain Charge	Qgd	ID = 80 A		17		nC
Body Diode Forward Voltage	VF(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



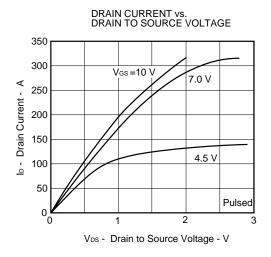
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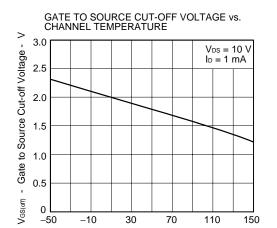
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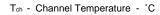
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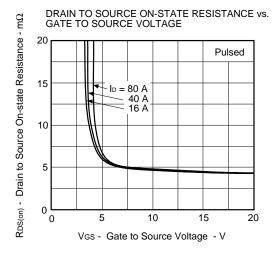
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TYPICAL CHARACTERISTICS ($T_A = 25^{\circ}C$)

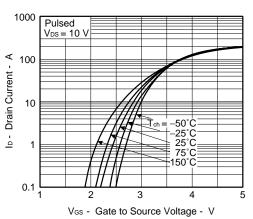




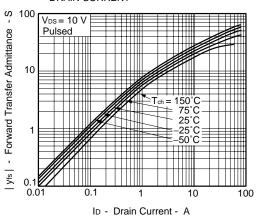


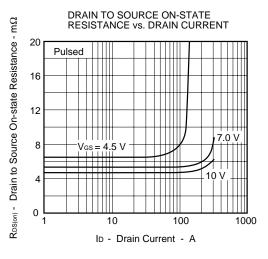


FORWARD TRANSFER CHARACTERISTICS



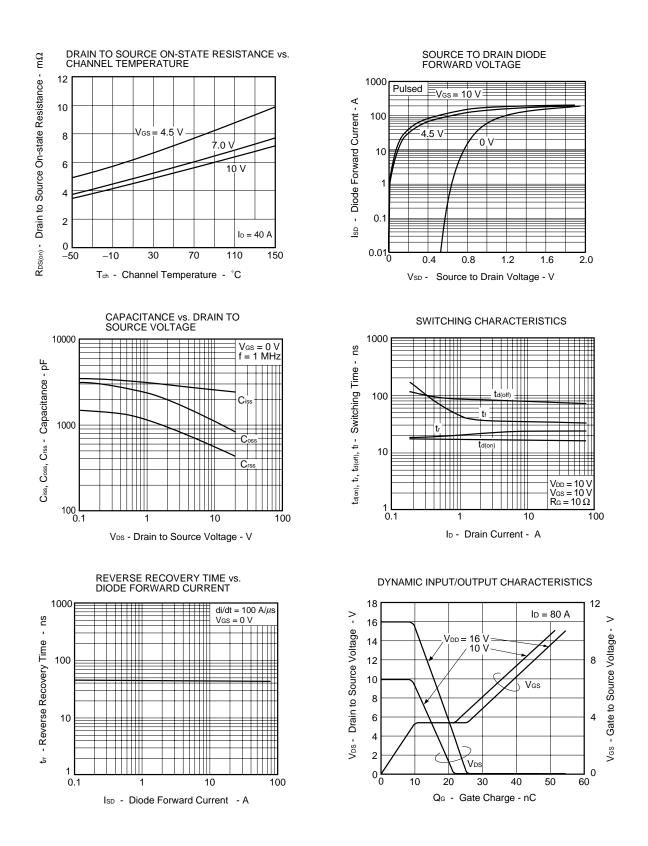
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT

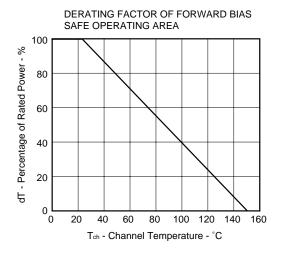


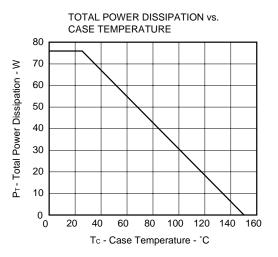


Data Sheet D14991EJ1V0DS

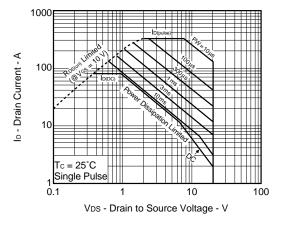
NEC



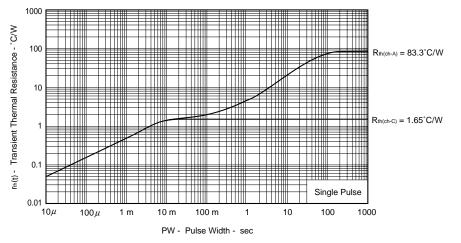




FORWARD BIAS SAFE OPERATING AREA



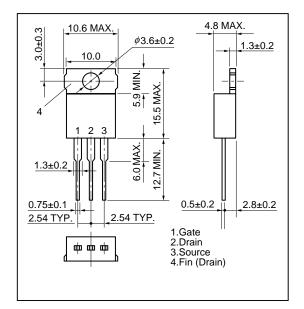
TRANSIENT THERMAL RESISTANCE vs. PULSE WIDTH



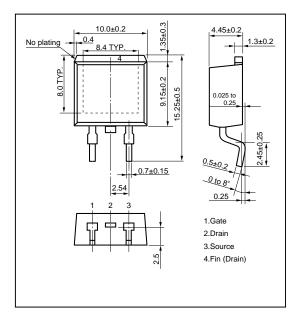
Data Sheet D14991EJ1V0DS

PACKAGE DRAWINGS (Unit : mm)

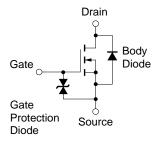
1)TO-220AB (MP-25)



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. [MEMO]

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