To our customers,

Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: http://www.renesas.com

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (http://www.renesas.com)

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RENESAS

MOS FIELD EFFECT TRANSISTOR

2SK3480

SWITCHING
N-CHANNEL POWER MOS FET

DESCRIPTION

The 2SK3480 is N-channel MOS Field Effect Transistor designed for high current switching applications.

FEATURES

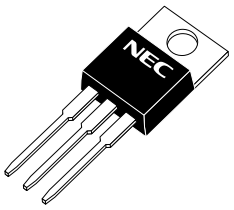
- Super low on-state resistance:
  $R_{DS(on)1}$ = 31 mΩ MAX. (V_{GS} = 10 V, I_D = 25 A)
  $R_{DS(on)2}$ = 36 mΩ MAX. (V_{GS} = 4.5 V, I_D = 25 A)
- Low C_{iss}: C_{iss} = 3600 pF TYP.
- Built-in gate protection diode

ORDERING INFORMATION

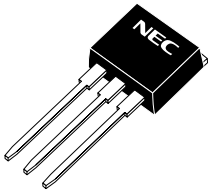
PART NUMBER	PACKAGE
2SK3480	TO-220AB
2SK3480-S	TO-262
2SK3480-ZJ	TO-263
2SK3480-Z	TO-220SMD[Note]

Note TO-220SMD package is produced only in Japan.

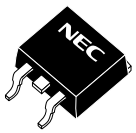
(TO-220AB)



(TO-262)



(TO-263, TO-220SMD)



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Drain to Source Voltage (V_{GS} = 0 V)	V_{DSS}	100	V
Gate to Source Voltage (V_{DS} = 0 V)	V_{GSS}	±20	V
Drain Current (DC) (T_C = 25°C)	$I_{D(DC)}$	±50	A
Drain Current (pulse) [Note1]	$I_{D(pulse)}$	±100	A
Total Power Dissipation (T_C = 25°C)	P_{T1}	84	W
Total Power Dissipation (T_A = 25°C)	P_{T2}	1.5	W
Channel Temperature	T_{ch}	150	°C
Storage Temperature	T_{stg}	–55 to +150	°C
Single Avalanche Current [Note2]	I_{AS}	34	A
Single Avalanche Energy [Note2]	E_{AS}	116	mJ

Notes 1. PW ≤ 10 μs, Duty cycle ≤ 1%

2. Starting T_{ch} = 25°C, R_G = 25 Ω, V_{GS} = 20 → 0 V

THERMAL RESISTANCE

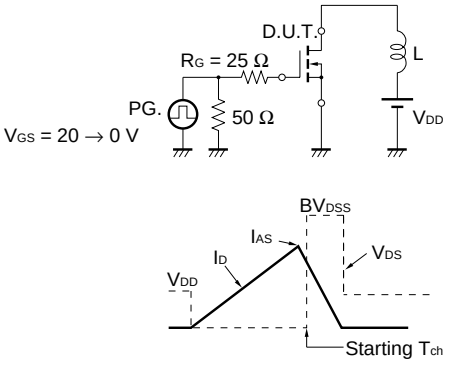
Channel to Case	$R_{th(ch-C)}$	1.48	°C/W
Channel to Ambient	$R_{th(ch-A)}$	83.3	°C/W

Document No. D15078EJ1V0DS00 (1st edition)
Date Published December 2001 NS CP(K)
Printed in Japan

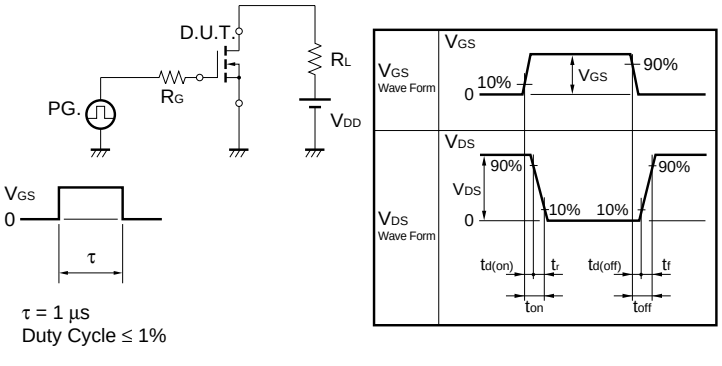
ELECTRICAL CHARACTERISTICS (T_A = 25°C)

CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 100 V, V_{GS} = 0 V			10	μA
Gate Leakage Current	I_{GSS}	V_{GS} = ±20 V, V_{DS} = 0 V			±10	μA
Gate Cut-off Voltage	$V_{GS(off)}$	V_{DS} = 10 V, I_D = 1 mA	1.5	2.0	2.5	V
Forward Transfer Admittance	$\|y_{fs}\|$	V_{DS} = 10 V, I_D = 25 A	17	34		S
Drain to Source On-state Resistance	$R_{DS(on)1}$	V_{GS} = 10 V, I_D = 25 A		25	31	mΩ
	$R_{DS(on)2}$	V_{GS} = 4.5 V, I_D = 25 A		27	36	mΩ
Input Capacitance	C_{iss}	V_{DS} = 10 V		3600		pF
Output Capacitance	C_{oss}	V_{GS} = 0 V		360		pF
Reverse Transfer Capacitance	C_{rss}	f = 1 MHz		190		pF
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = 50 V, I_D = 25 A		15		ns
Rise Time	t_r	V_{GS} = 10 V		11		ns
Turn-off Delay Time	$t_{d(off)}$	R_G = 0 Ω		68		ns
Fall Time	t_f			6.0		ns
Total Gate Charge	Q_G	V_{DD} = 80 V		74		nC
Gate to Source Charge	Q_{GS}	V_{GS} = 10 V		10		nC
Gate to Drain Charge	Q_{GD}	I_D = 50 A		20		nC
Body Diode Forward Voltage	$V_{F(S-D)}$	I_F = 50 A, V_{GS} = 0 V		1.0		V
Reverse Recovery Time	t_{rr}	I_F = 50 A, V_{GS} = 0 V		70		ns
Reverse Recovery Charge	Q_{rr}	di/dt = 100 A/μs		180		nC

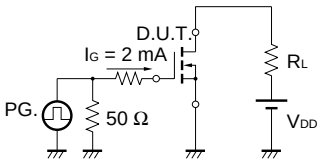
TEST CIRCUIT 1 AVALANCHE CAPABILITY



TEST CIRCUIT 2 SWITCHING TIME

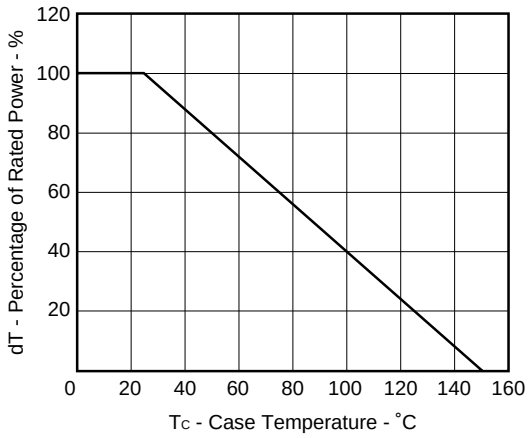


TEST CIRCUIT 3 GATE CHARGE

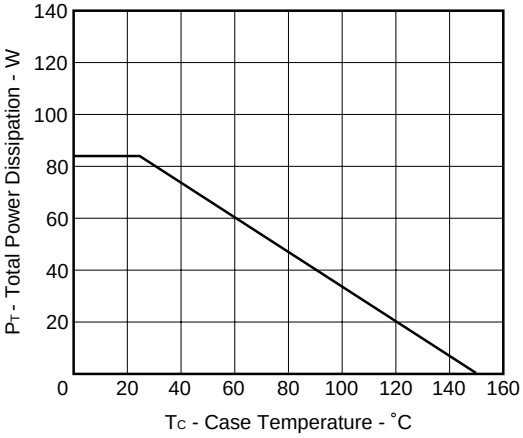


TYPICAL CHARACTERISTICS (T_A = 25°C)

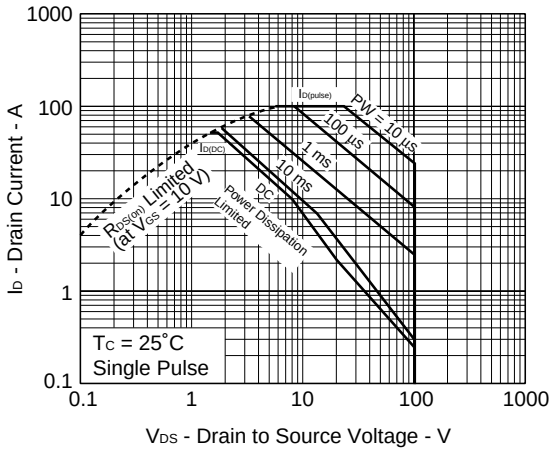
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



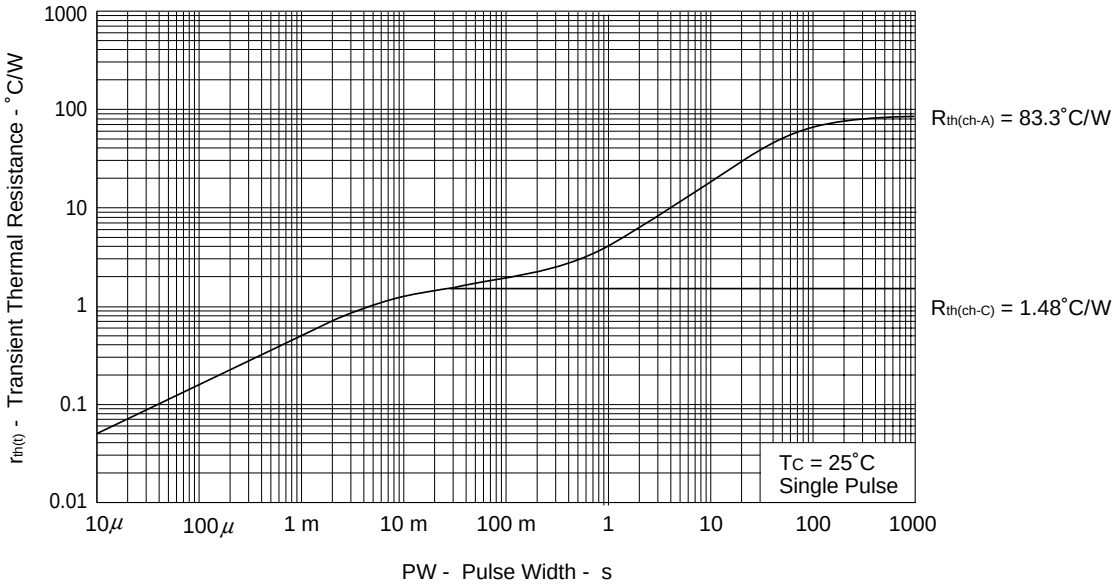
TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



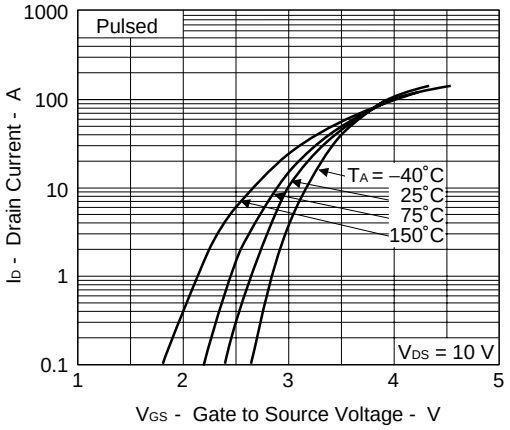
FORWARD BIAS SAFE OPERATING AREA



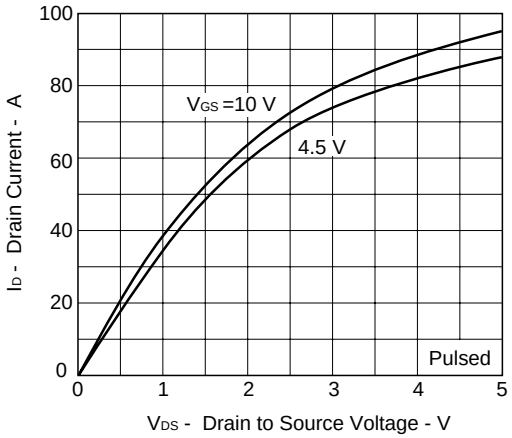
TRANSIENT THERMAL RESISTANCE vs. PULSE WIDTH



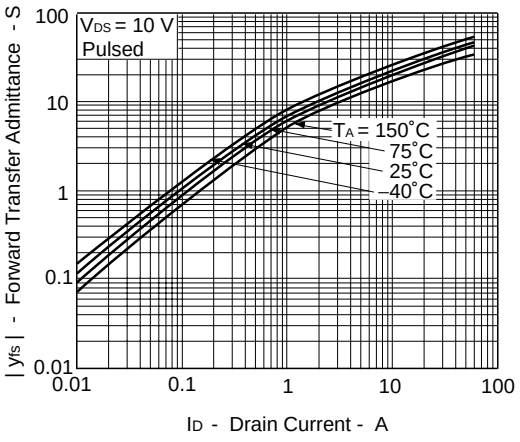
FORWARD TRANSFER CHARACTERISTICS



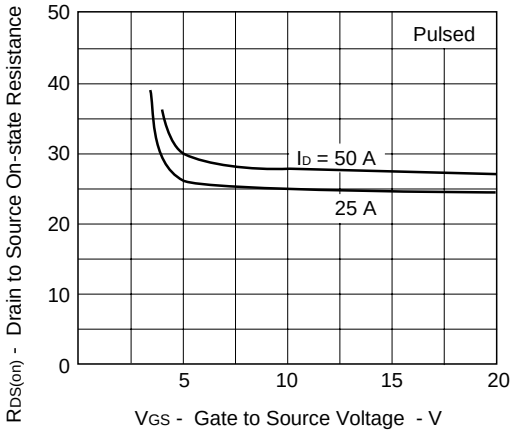
DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



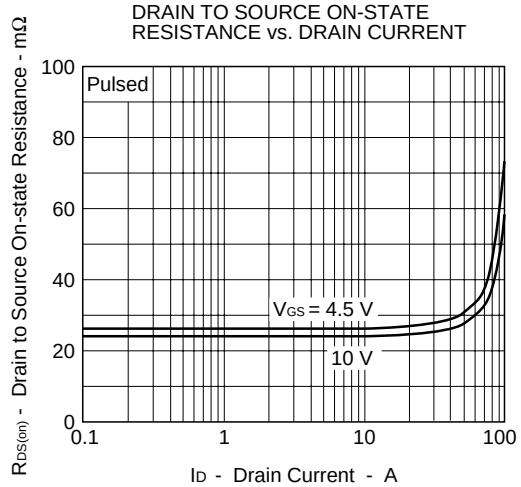
FORWARD TRANSFER ADMITTANCE vs.
DRAIN CURRENT



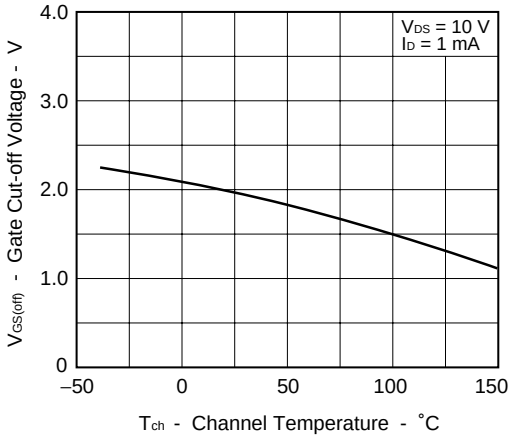
DRAIN TO SOURCE ON-STATE RESISTANCE vs.
GATE TO SOURCE VOLTAGE



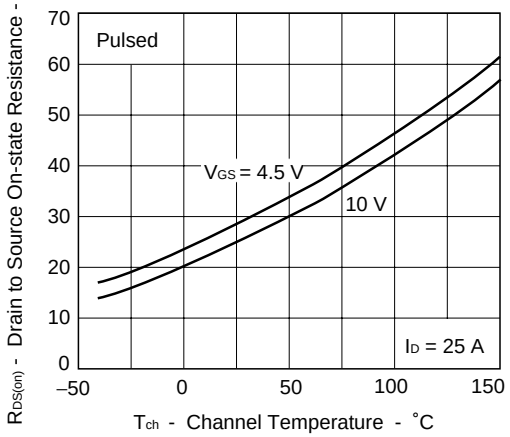
DRAIN TO SOURCE ON-STATE
RESISTANCE vs. DRAIN CURRENT



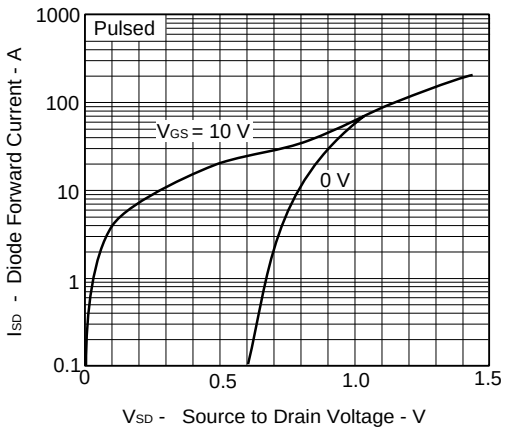
GATE CUT-OFF VOLTAGE vs.
CHANNEL TEMPERATURE



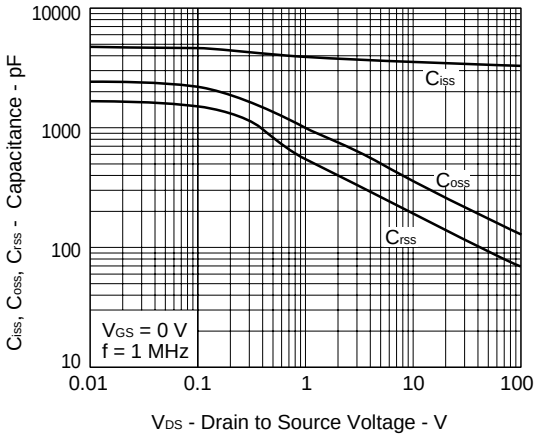
DRAIN TO SOURCE ON-STATE RESISTANCE vs.
CHANNEL TEMPERATURE



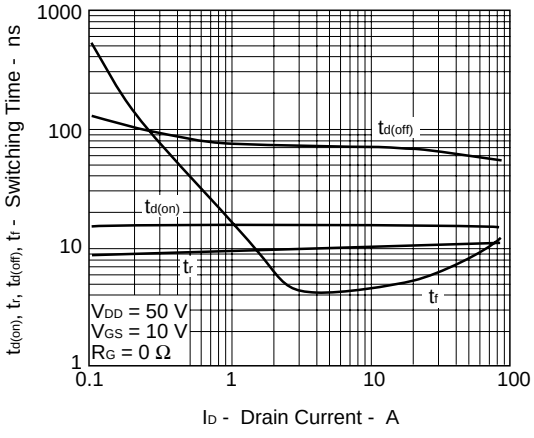
SOURCE TO DRAIN DIODE
FORWARD VOLTAGE



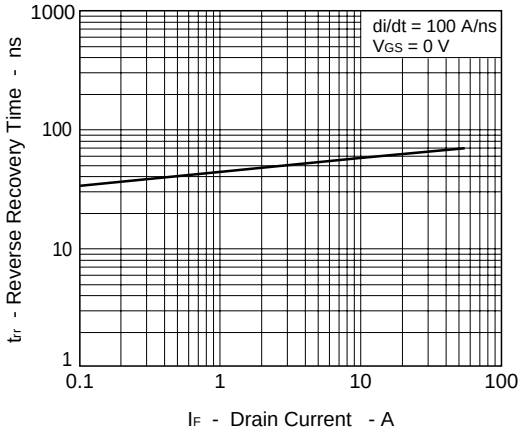
CAPACITANCE vs.
DRAIN TO SOURCE VOLTAGE



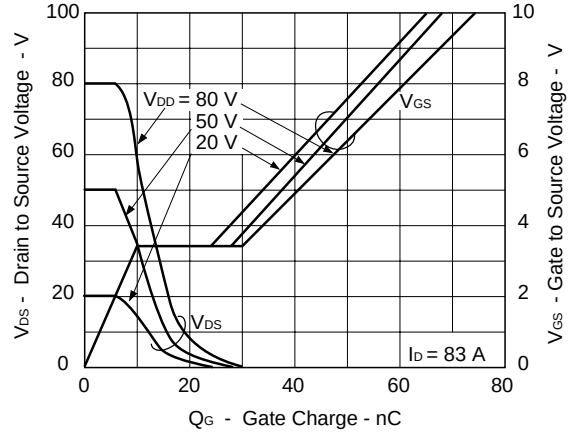
SWITCHING CHARACTERISTICS



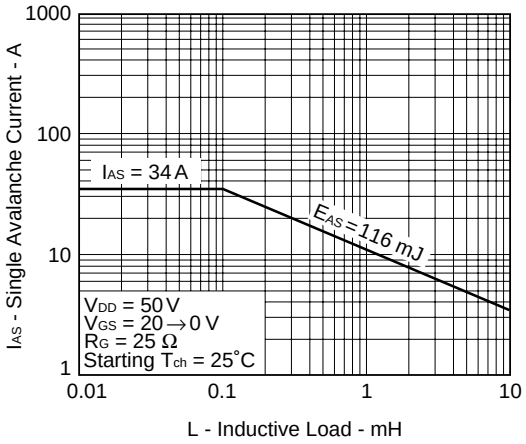
REVERSE RECOVERY TIME vs.
DRAIN CURRENT



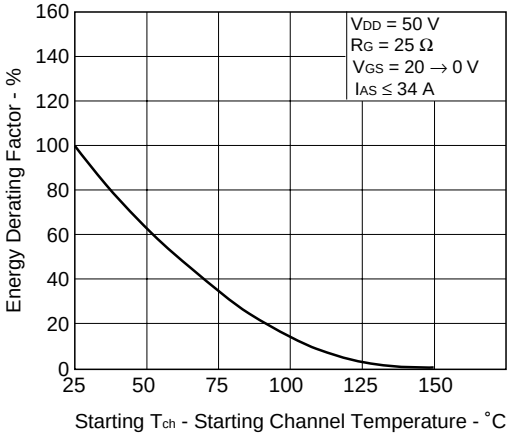
DYNAMIC INPUT/OUTPUT CHARACTERISTICS



SINGLE AVALANCHE CURRENT vs.
INDUCTIVE LOAD

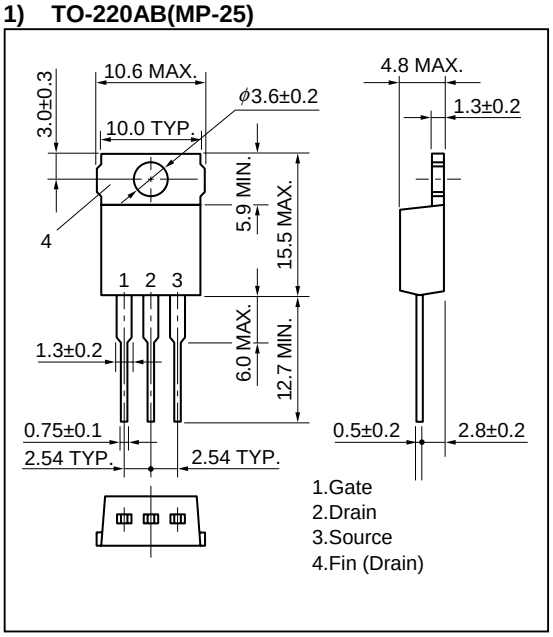


SINGLE AVALANCHE ENERGY
DERATING FACTOR

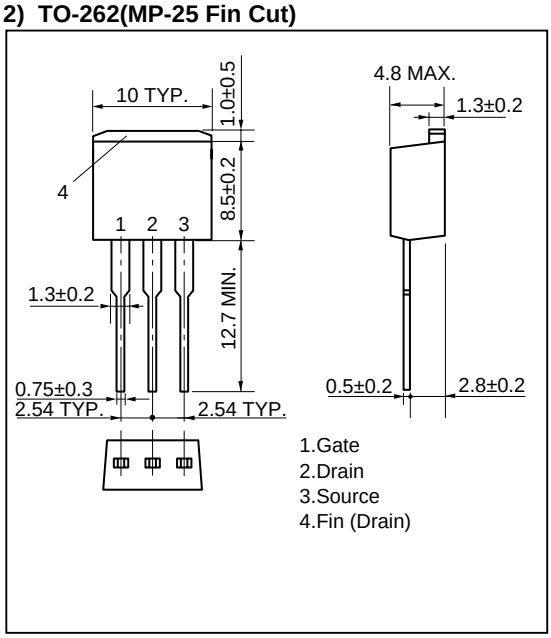


PACKAGE DRAWINGS (Unit: mm)

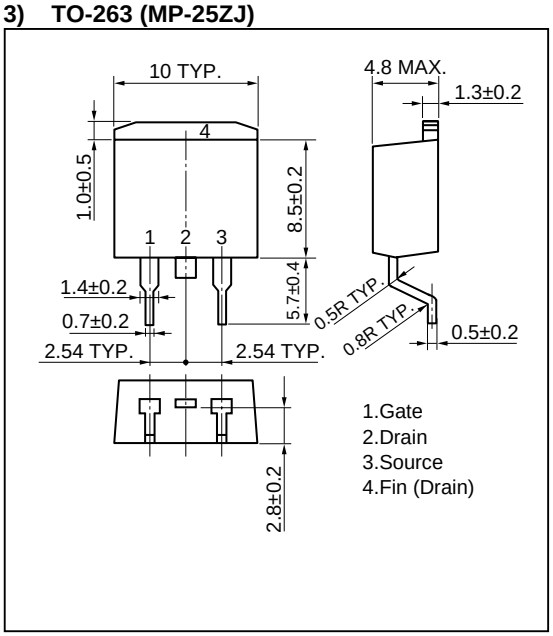
1) TO-220AB(MP-25)



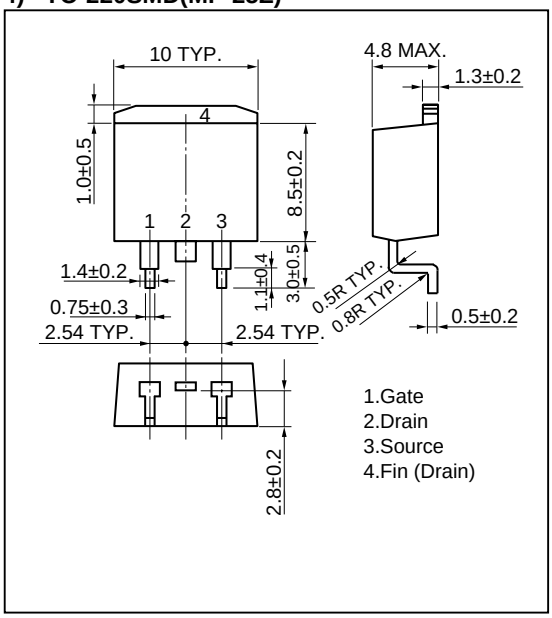
2) TO-262(MP-25 Fin Cut)



3) TO-263 (MP-25ZJ)

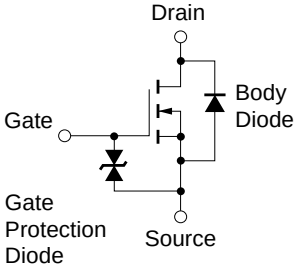


4) TO-220SMD(MP-25Z)[Note]



Note This package is produced only in Japan.

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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С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- *Конкурентоспособные цены и скидки постоянным клиентам.*
- *Специальные условия для постоянных клиентов.*
- *Подбор аналогов.*
- *Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.*

- *Приемлемые сроки поставки, возможна ускоренная поставка.*
- *Доставку товара в любую точку России и стран СНГ.*
- *Комплексную поставку.*
- *Работу по проектам и поставку образцов.*
- *Формирование склада под заказчика.*

- *Сертификаты соответствия на поставляемую продукцию (по желанию клиента).*
- *Тестирование поставляемой продукции.*
- *Поставку компонентов, требующих военную и космическую приемку.*
- *Входной контроль качества.*
- *Наличие сертификата ISO.*

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- *Регистрацию проекта у производителя компонентов.*
- *Техническую поддержку проекта.*
- *Защиту от снятия компонента с производства.*
- *Оценку стоимости проекта по компонентам.*
- *Изготовление тестовой платы монтаж и пусконаладочные работы.*

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