To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

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

-CHANNEL MOS FIELD EFFECT POWER TRANSISTOR

Phase-out/Discontinued

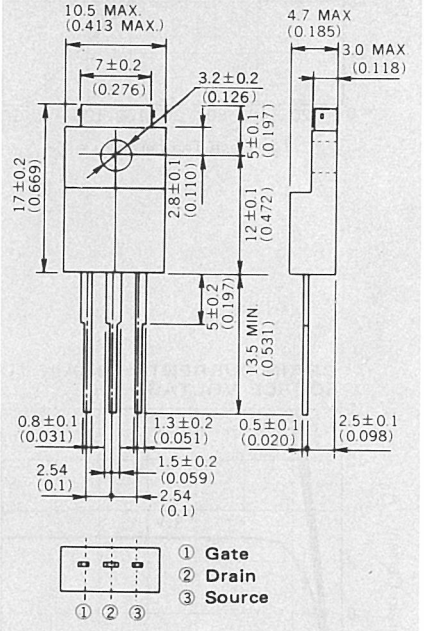
2SK736

DESCRIPTION The 2SK736 is N-Channel MOS Field Effect Power Transistor designed for solenoid, motor and lamp driver.

FEATURES

- Gate Drive — Logic level —
- Low $R_{DS(on)}$
- No Secondary Breakdown

PACKAGE DIMENSIONS
in millimeters (inches)



ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

- Storage Temperature . . . . . −55 to +150 °C
- Channel Temperature . . . . . 150 °C Maximum

Maximum Power Dissipations

Total Power Dissipation (T_a = 25 °C) . . .	2.0	W
Total Power Dissipation (T_c = 25 °C) . . .	35	W

Maximum Voltages and Currents (T_a = 25 °C)

V_{DSS}	Drain to Source Voltage	100	V
V_{GSS}	Gate to Source Voltage	±20	V
$I_{D(DC)}$	Drain Current (DC)	±15	A
$I_{D(pulse)}$	Drain Current (pulse)*	±60	A

*PW ≦ 300 μs, Duty Cycle ≦ 10 %

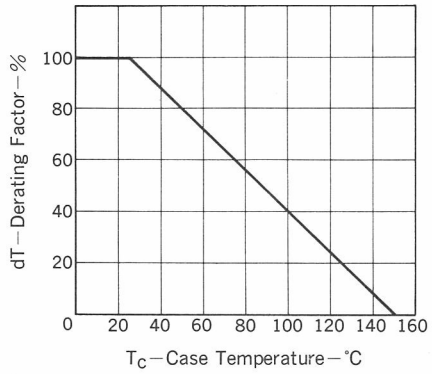
ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
$R_{DS(on)}$	Drain to Source On-State Resistance			0.08	Ω	V_{GS} = 10 V, I_D = 6 A
$R_{DS(on)}$	Drain to Source On-State Resistance			0.10	Ω	V_{GS} = 4 V, I_D = 6 A
$V_{GS(off)}$	Gate to Source Cutoff Voltage	1.0		2.5	V	V_{DS} = 10 V, I_D = 1 mA
$\|y_{fs}\|$	Forward Transfer Admittance	5.0			S	V_{DS} = 10 V, I_D = 6 A
I_{DSS}	Drain Leakage Current			10	μA	V_{DS} = 100 V, V_{GS} = 0
I_{GSS}	Gate to Source Leakage Current			±100	nA	V_{GS} = ±20 V, V_{DS} = 0
C_{iss}	Input Capacitance		2400		pF	V_{DS} = 10 V V_{GS} = 0 f = 1 MHz
C_{oss}	Output Capacitance		600		pF	
C_{rss}	Reverse Transfer Capacitance		100		pF	
$t_{d(on)}$	Turn On Delay Time		15		ns	I_D = 6 A, V_{CC} ≒ 50 V R_L = 5 Ω R_{in} = 10 Ω
t_r	Rise Time		70		ns	
$t_{d(off)}$	Turn Off Delay Time		250		ns	
t_f	Fall Time		160		ns	

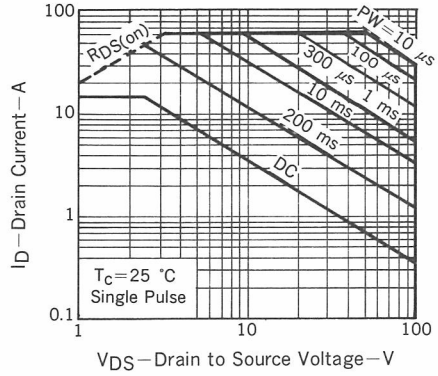
Phase-out/Discontinued

TYPICAL CHARACTERISTICS (T_a = 25 °C)

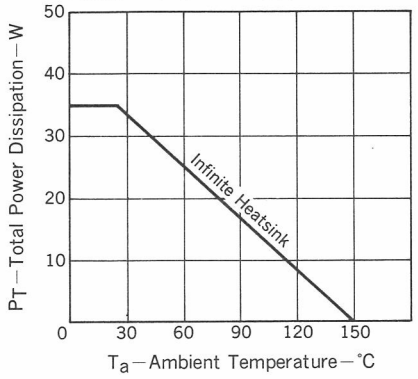
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



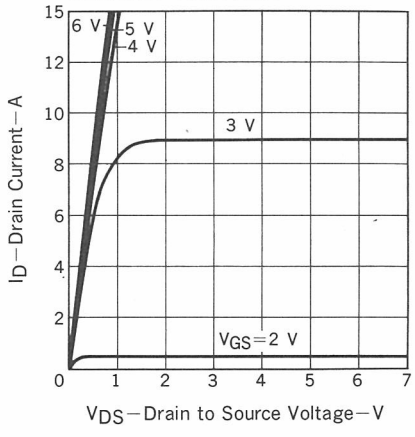
FORWARD BIAS SAFE OPERATING AREA



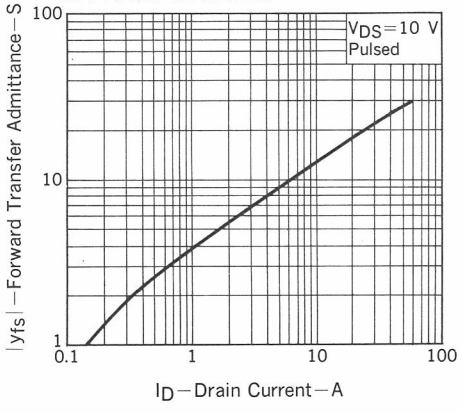
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



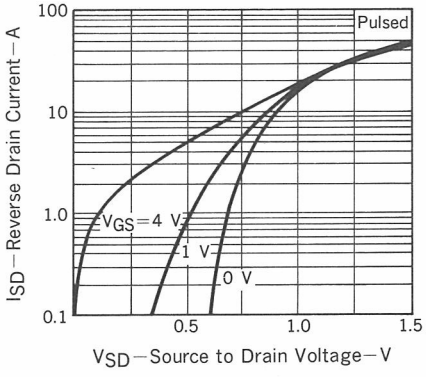
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



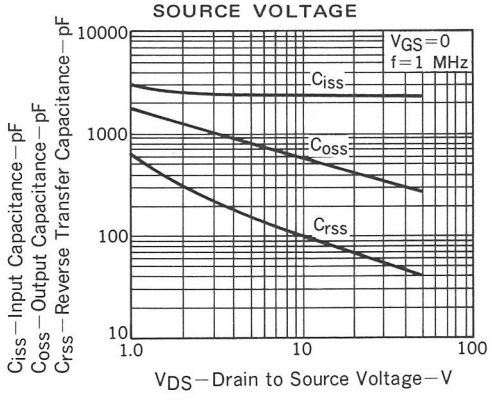
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



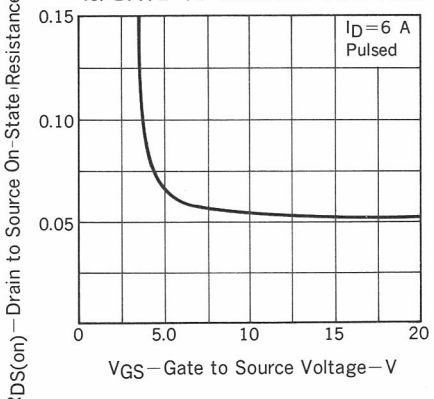
SOURCE TO DRAIN DIODE FORWARD VOLTAGE



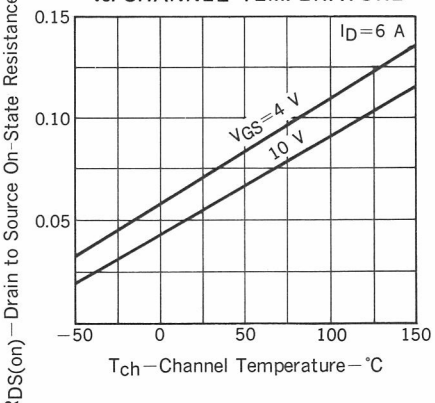
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



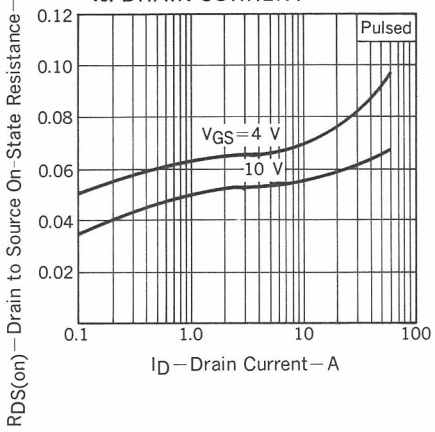
DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE



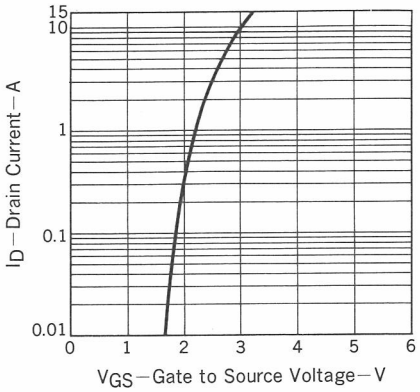
DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE



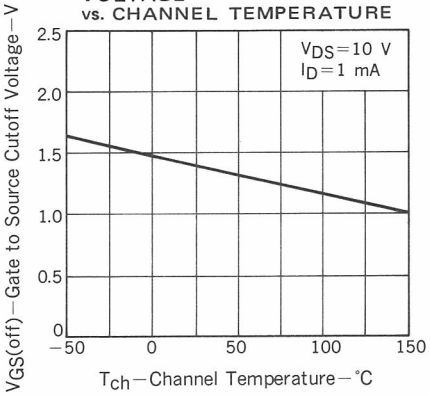
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



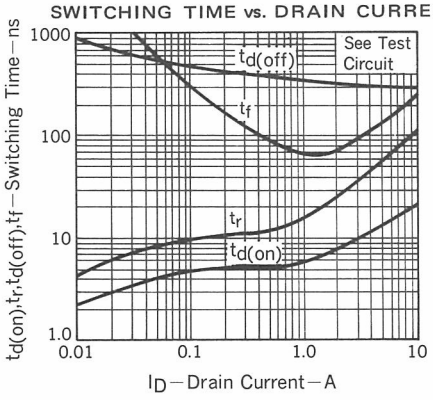
TRANSFER CHARACTERISTIC



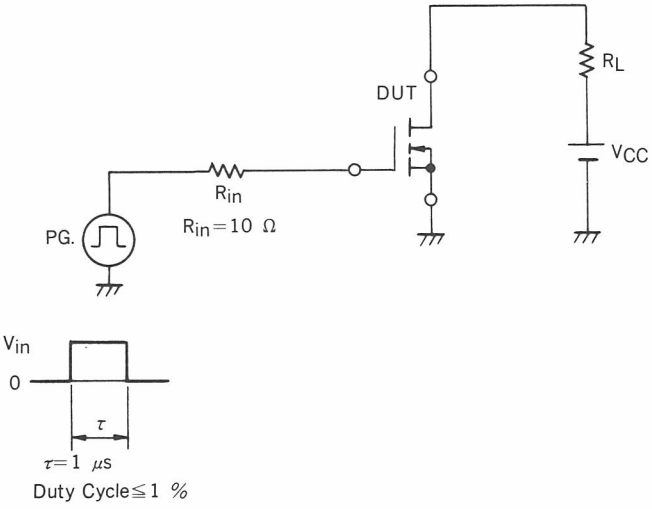
GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE

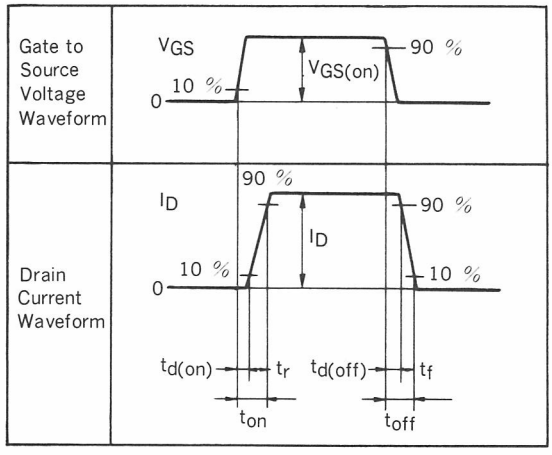


SWITCHING TIME vs. DRAIN CURRENT



SWITCHING TIME TEST CIRCUIT





Phase-out/Discontinued

NEC HONG KONG Limited
Flat A, B, 12/F., Chuan Kei Factory Building,
No. 15-23, Kin Hong Street, Kwai Chung,
New Territories, Hong Kong
Tel: 0-242-824/7
Telex Address: 84561 HKNEC HX

NEC SINGAPORE PTE, LTD.
38, Ang Mo Kio Industrial
Park 2
Singapore 2056
Tel: 4819881 (9 Lines)
Telex: NEC SIN RS39726

NEC HONG KONG Limited, Taipei Branch
Room 701 Chiu Bldg. 152
Sec. 1, Chung Shan N. Road
Taipei Taiwan
Tel: 02-522-4192, 4258
Telex Address: 22372 HKNEC TP

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