NEC

MOS FIELD EFFECT TRANSISTOR

μPA572T

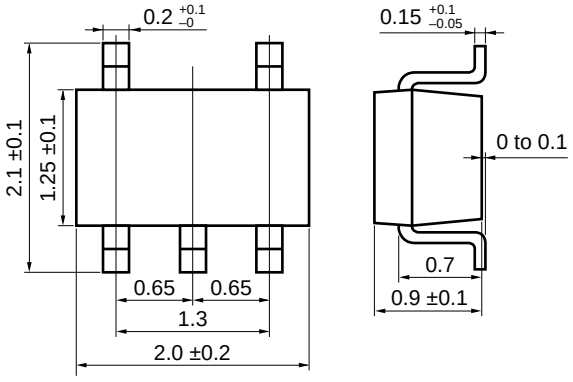
N-CHANNEL MOS FET (5-PIN 2 CIRCUITS) FOR SWITCHING

The μPA572T is a super-mini-mold device provided with two MOS FET circuits. It achieves high-density mounting and saves mounting costs.

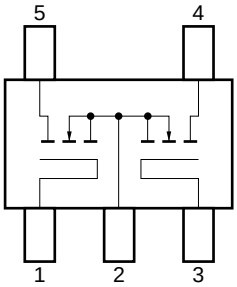
FEATURES

- Two source common MOS FET circuits in package the same size as SC-70
- Directly driven by 3 V power supply
- Automatic mounting supported

PACKAGE DIMENSIONS (in millimeters)



EQUIVALENT CIRCUIT



PIN CONNECTION

1. Gate 1 (G1)
2. Source (common)
3. Gate 2 (G2)
4. Drain 2 (D2)
5. Drain 1 (D1)

Marking: DB

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C)

PARAMETER	SYMBOL	TEST CONDITIONS	RATINGS	UNIT
Drain to Source Voltage	V_{DSS}	V_{GS} = 0	30	V
Gate to Source Voltage	V_{GSS}	V_{DS} = 0	±7	V
Drain Current (DC)	$I_{D(DC)}$		±100	mA
Drain Current (pulse)	$I_{D(pulse)}$	PW ≤ 10 ms, Duty Cycle ≤ 50 %	±200	mA
Total Power Dissipation	P_T		200 (Total)	mW
Channel Temperature	T_{ch}		150	°C
Operating Temperature	T_{opt}		–55 to +80	°C
Storage Temperature	T_{stg}		–55 to +150	°C

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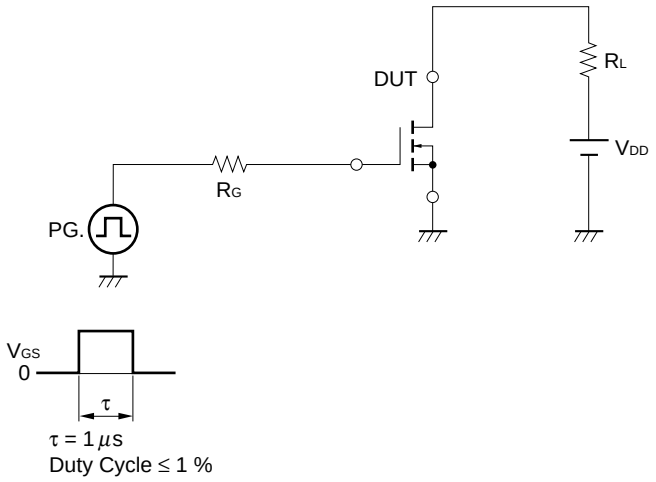
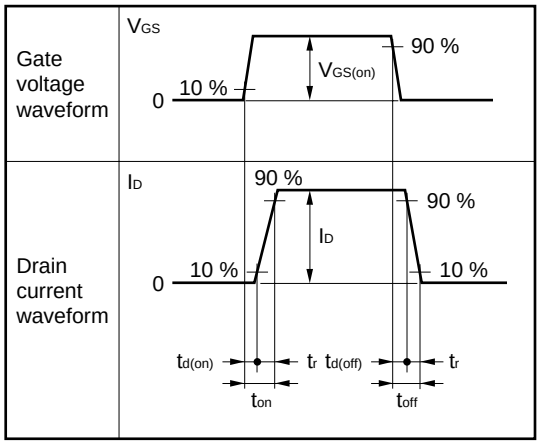
ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Drain Cut-off Current	I_{DSS}	V_{DS} = 30 V, V_{GS} = 0			1.0	μA
Gate Leakage Current	I_{GSS}	V_{GS} = ±5 V, V_{DS} = 0			±3.0	μA
Gate Cut-off Voltage	$V_{GS(off)}$	V_{DS} = 3 V, I_D = 10 μA	0.8	1.0	1.5	V
Forward Transfer Admittance	$\|y_{fs}\|$	V_{DS} = 3 V, I_D = 10 mA	20	50		mS
Drain to Source On-State Resistance	$R_{DS(on)1}$	V_{GS} = 2.5 V, I_D = 1 mA		7	13	Ω
Drain to Source On-State Resistance	$R_{DS(on)2}$	V_{GS} = 4.0 V, I_D = 10 mA		5	8	Ω
Input Capacitance	C_{iss}	V_{DS} = 5.0 V, V_{GS} = 0, f = 1 MHz		16		pF
Output Capacitance	C_{oss}			14		pF
Reverse Transfer Capacitance	C_{rss}			2		pF
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 5 V, I_D = 10 mA, $V_{GS(on)}$ = 5 V, R_G = 10 Ω, R_L = 500 Ω		15		ns
Rise Time	t_r			20		ns
Turn-Off Delay Time	$t_{d(off)}$			100		ns
Fall Time	t_f			100		ns

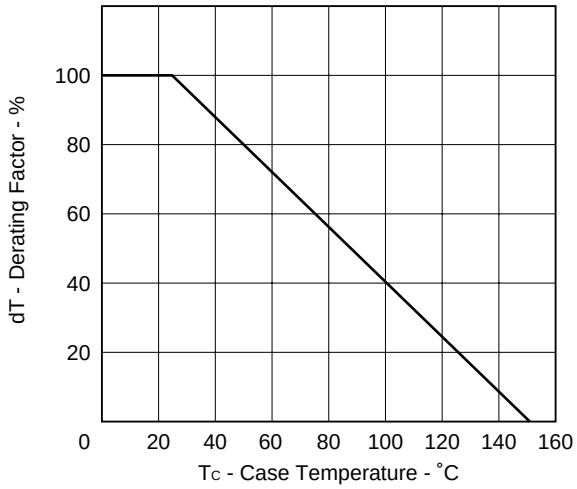
SWITCHING TIME MEASUREMENT CIRCUIT AND CONDITIONS (RESISTANCE LOADED)



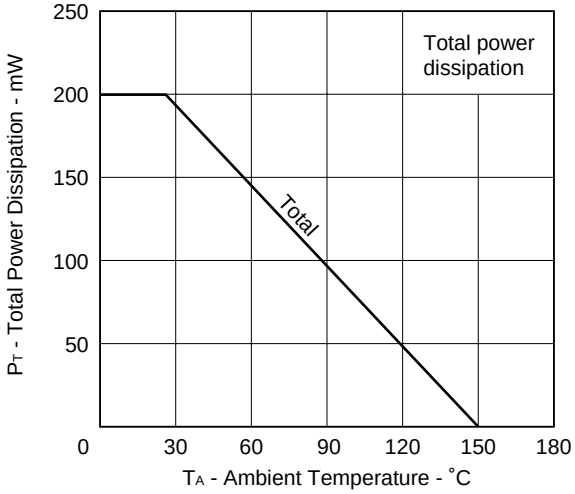


TYPICAL CHARACTERISTICS (T_A = 25 ˚C)

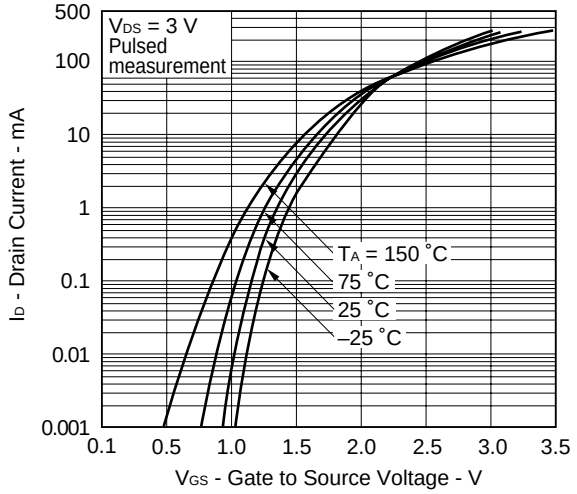
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



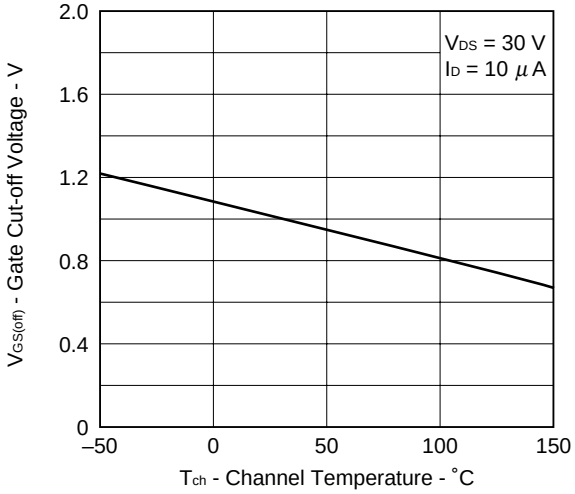
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



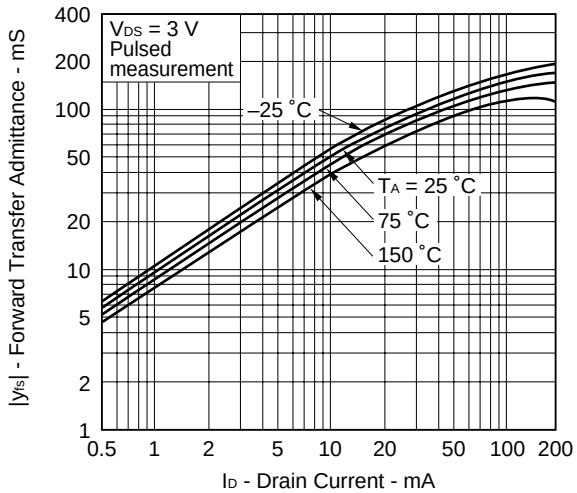
TRANSFER CHARACTERISTICS



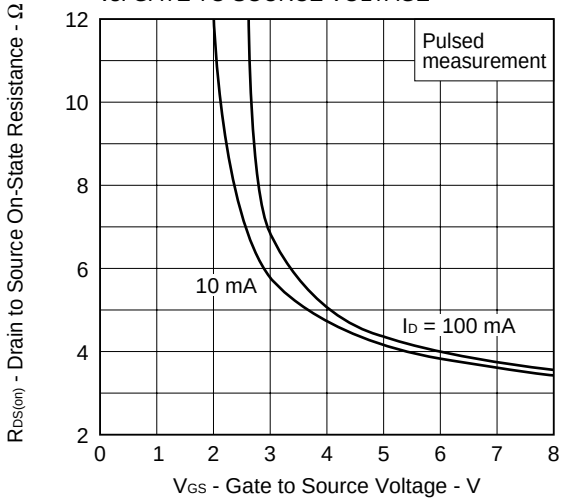
GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE



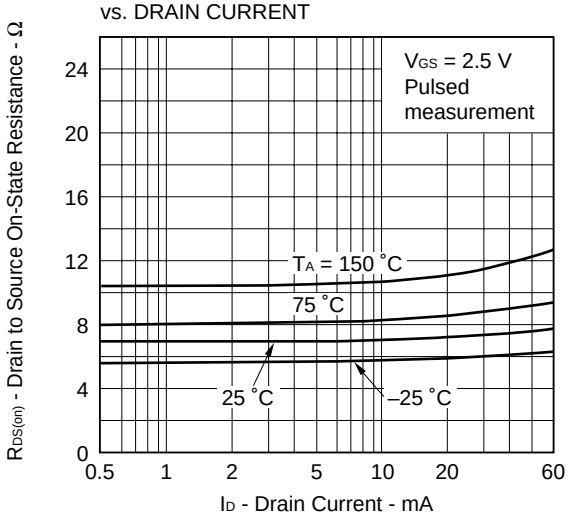
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



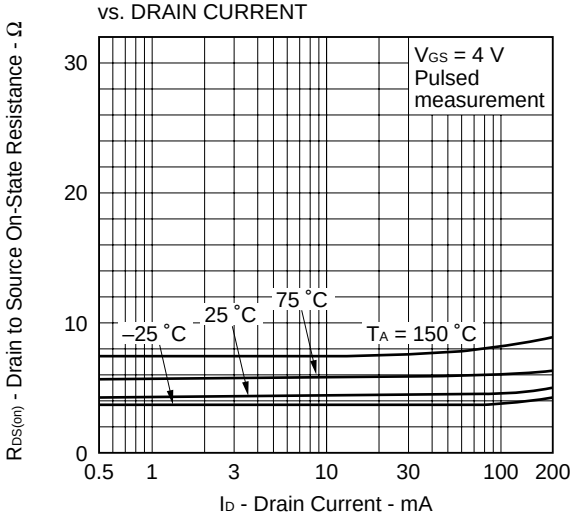
DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE



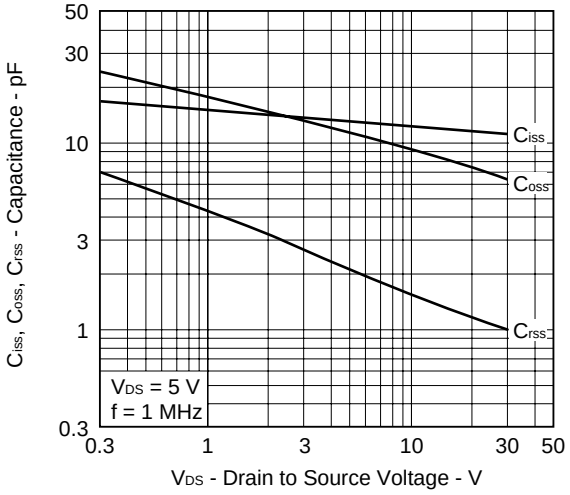
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



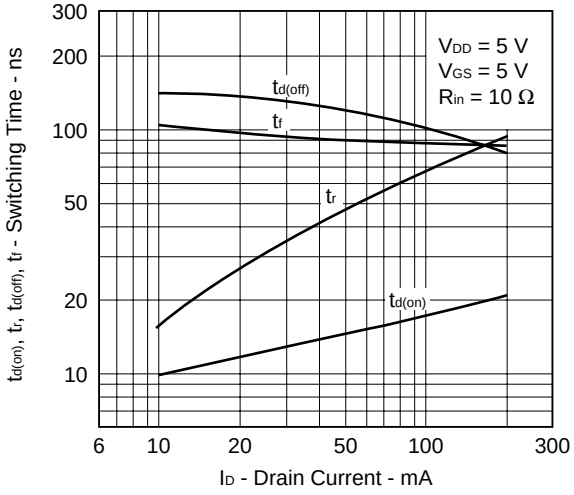
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



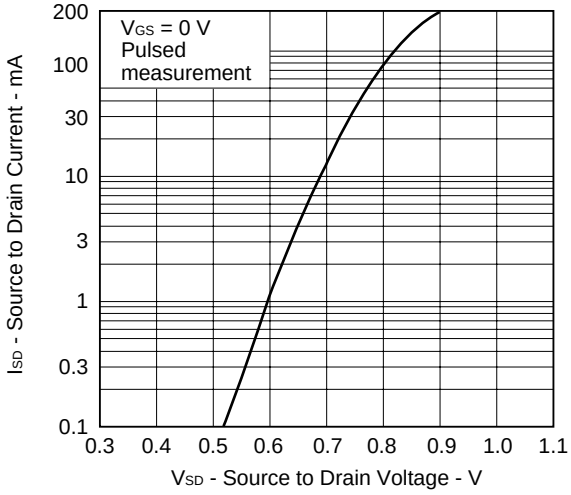
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



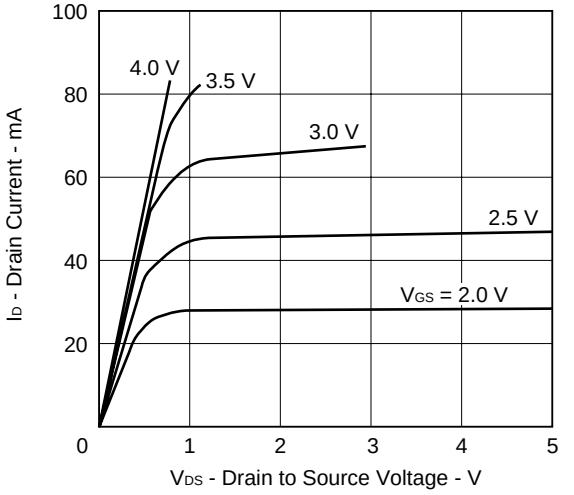
SWITCHING CHARACTERISTICS



SOURCE TO DRAIN DIODE FORWARD VOLTAGE



DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



REFERENCE

Document Name	Document No.
NEC semiconductor device reliability/quality control system	TEI-1202
Quality grade on NEC semiconductor devices	IEI-1209
Semiconductor device mounting technology manual	C10535E
Guide to quality assurance for semiconductor devices	MEI-1202
Semiconductor selection guide	X10679E

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