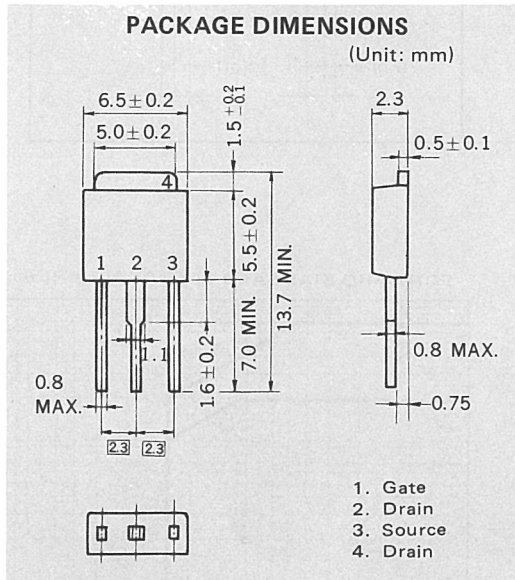


Phase-out/Discontinued

2SK446

**FAST SWITCHING
N-CHANNEL SILICON POWER MOS FET
INDUSTRIAL USE**



FEATURES

- Suitable for switching power supplies, actuator controls, and pulse circuits.
- Low $R_{DS(on)}$
- No second breakdown

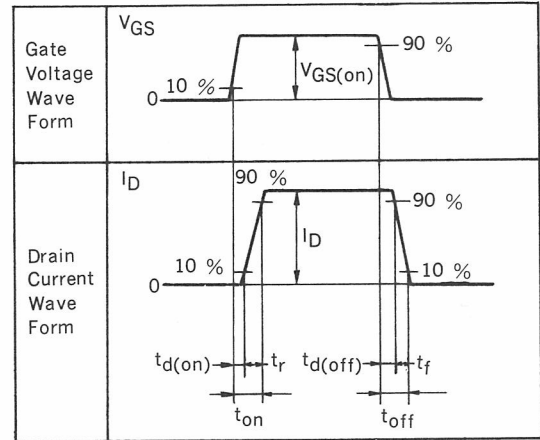
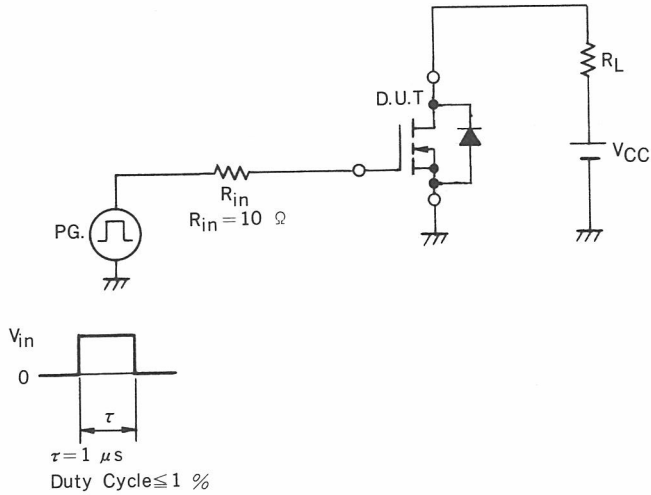
ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

Drain to Source Voltage	V_{DSS}	20	V
Gate to Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current	$I_{D(DC)}$	± 2	A
Total Power Dissipation	P_T	20	W
Channel Temperature	T_{ch}	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

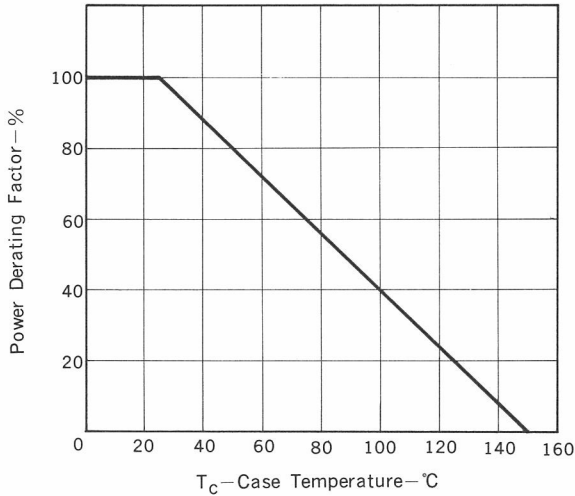
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain Leakage Current	I_{DSS}			50	μA	$V_{DS} = 20 \text{ V}, V_{GS} = 0$
Gate to Source Leakage Current	I_{GSS}			± 100	nA	$V_{GS} = \pm 20 \text{ V}, V_{DS} = 0$
Gate to Source Cutoff Voltage	$V_{GS(off)}$	1		4	V	$V_{DS} = 10 \text{ V}, I_D = 1 \text{ mA}$
Forward Transfer Admittance	$ y_{fs} $	0.5			S	$V_{DS} = 10 \text{ V}, I_D = 1 \text{ A}$
Drain to Source On-State Resistance	$R_{DS(on)}$			0.4	Ω	$V_{GS} = 10 \text{ V}, I_D = 1 \text{ A}$
Input Capacitance	C_{iss}		350		pF	$V_{DS} = 10 \text{ V}, V_{GS} = 0$ $f = 1 \text{ MHz}$
Output Capacitance	C_{oss}		250		pF	
Reverse Transfer Capacitance	C_{rss}		150		pF	
Turn-On Delay Time	$t_{d(on)}$		10		ns	$I_D = 1 \text{ A}, V_{CC} \approx 10 \text{ V}$ $V_{GS(on)} = 10 \text{ V}$ $R_L = 10 \Omega$ $R_{in} = 10 \Omega$
Rise Time	t_r		20		ns	
Turn-Off Delay Time	$t_{d(off)}$		20		ns	
Fall Time	t_f		20		ns	

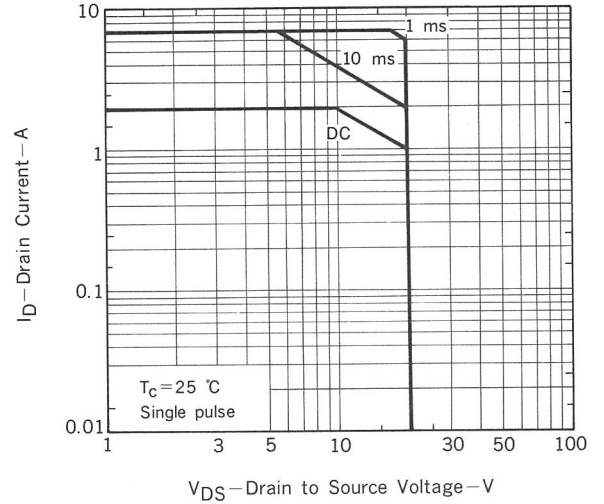
TURN-ON AND TURN-OFF TIME TEST CIRCUIT



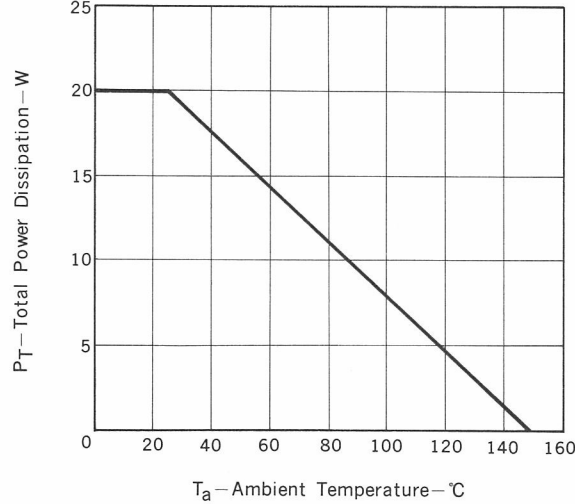
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



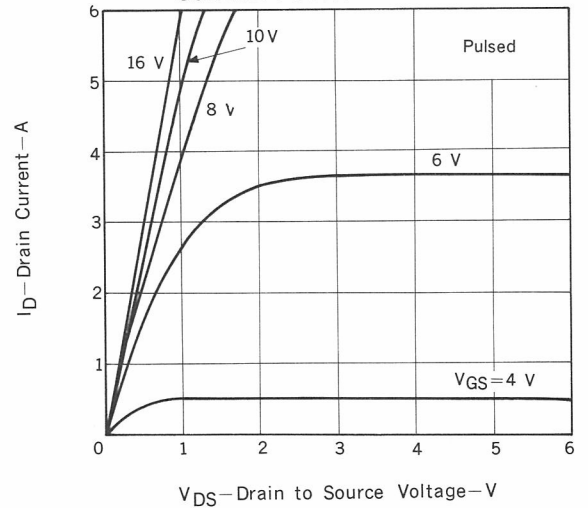
FORWARD BIAS SAFE OPERATING AREA



TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE

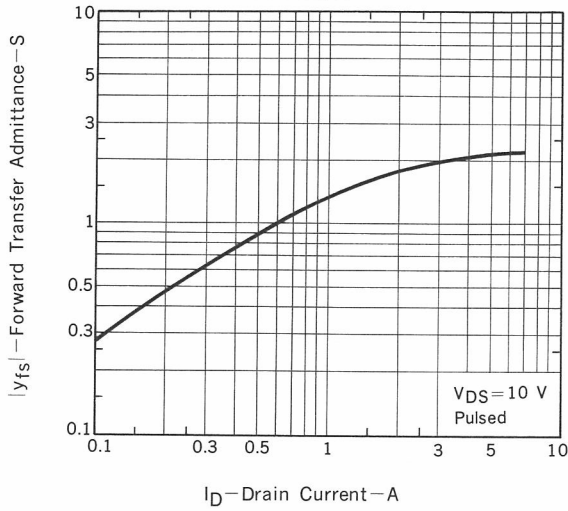


DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE

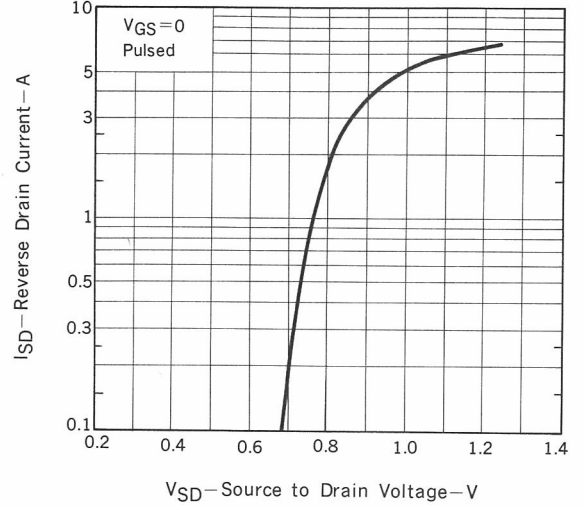


Phase-out/Discontinued

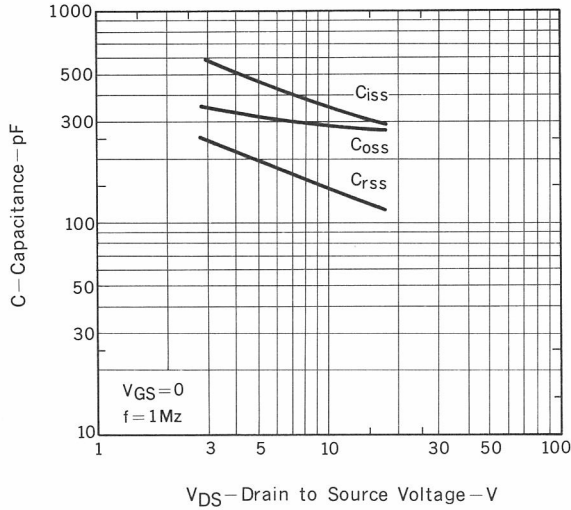
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



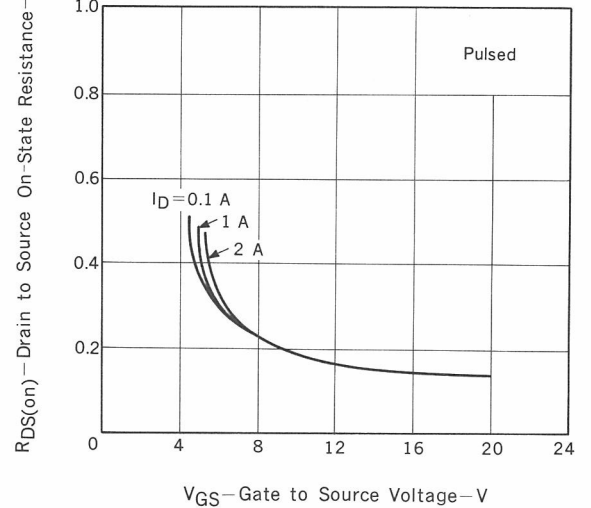
SOURCE TO DRAIN DIODE FORWARD VOLTAGE



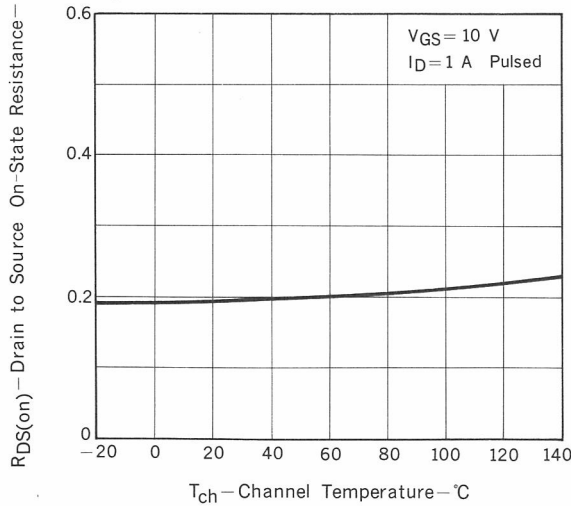
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



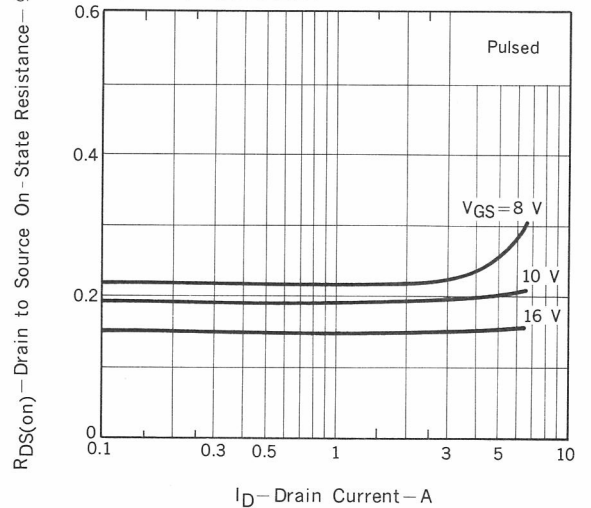
DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE

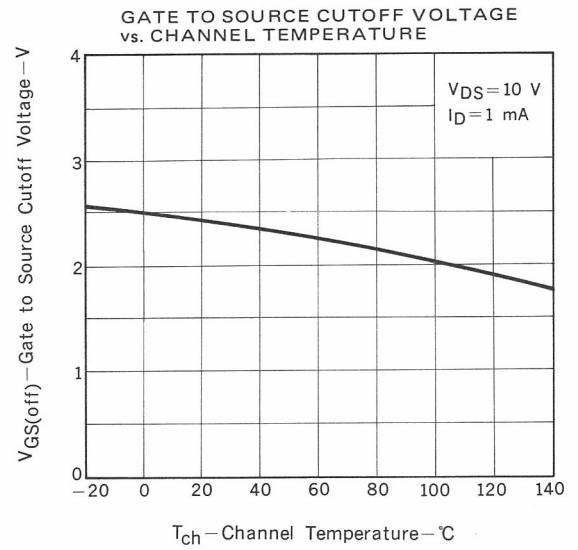
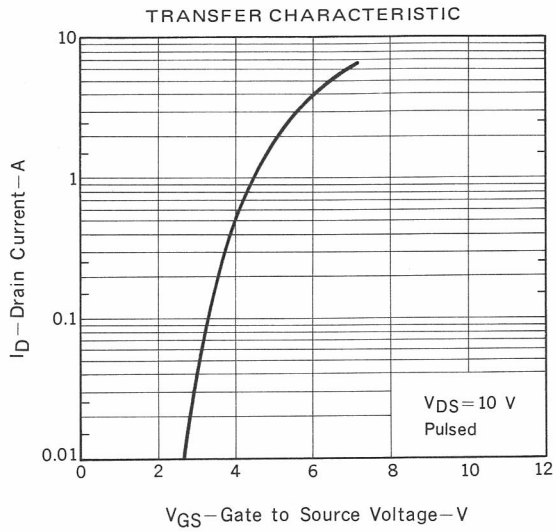


DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE



DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



Phase-out/Discontinued

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