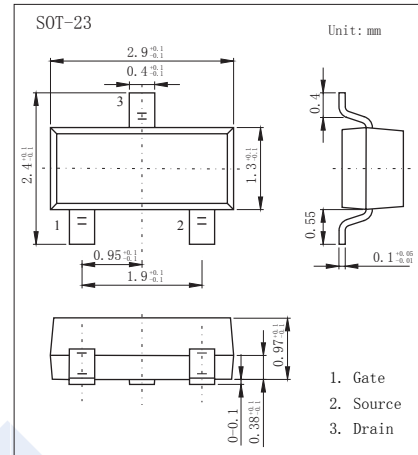
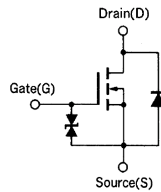


## N-Channel MOSFET

### 2SK1657

#### ■ Features

- $V_{DS} (V) = 30V$
- $I_D = 0.1A$
- $R_{DS(ON)} < 45 \Omega$  ( $V_{GS} = 2.5V$ )
- $R_{DS(ON)} < 25 \Omega$  ( $V_{GS} = 4V$ )



#### ■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 7$	
Continuous Drain Current	$I_D$	100	mA
Pulsed Drain Current (Note.1)	$I_{DM}$	200	
Power Dissipation	$P_D$	200	mW
Junction Temperature	$T_J$	150	$^\circ C$
Operating Temperature	$T_{opt}$	-55 to 80	
Storage Temperature Range	$T_{stg}$	-55 to 150	

Note.1:  $PW \leq 10ms$ , Duty Cycle  $\leq 50\%$

#### ■ Electrical Characteristics $T_a = 25^\circ C$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{DSS}$	$I_D = 250 \mu A$ , $V_{GS} = 0V$	30			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 30V$ , $V_{GS} = 0V$			10	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{DS} = 0V$ , $V_{GS} = \pm 3V$			$\pm 5$	$\mu A$
Gate Cut-off Voltage	$V_{GS(off)}$	$V_{DS} = 3V$ , $I_D = 1\mu A$	0.9		1.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 2.5V$ , $I_D = 10mA$			45	$\Omega$
		$V_{GS} = 4V$ , $I_D = 10mA$			25	
Forward Transconductance	$g_{FS}$	$V_{DS} = 3V$ , $I_D = 10mA$	20	40		ms
Input Capacitance	$C_{iss}$	$V_{GS} = 0V$ , $V_{DS} = 3V$ , $f = 1MHz$		15		pF
Output Capacitance	$C_{oss}$			10		
Reverse Transfer Capacitance	$C_{rss}$			1.5		
Turn-On Delay Time	$t_{d(on)}$				95	
Turn-On Rise Time	$t_r$	$V_{GS(on)} = 3V$ , $V_{DS} = 3V$ , $I_D = 10mA$ , $R_L = 300 \Omega$ , $R_G = 10 \Omega$		360		
Turn-Off Delay Time	$t_{d(off)}$			160		
Turn-Off Fall Time	$t_f$			150		

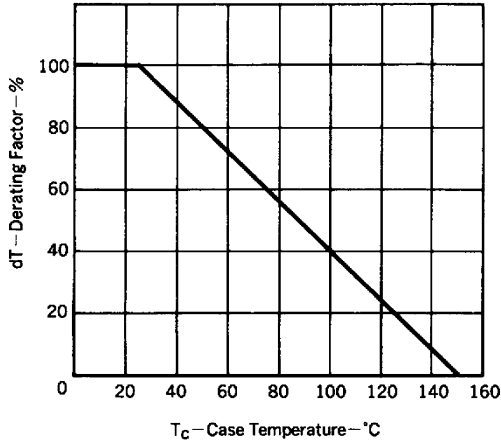
#### ■ Marking

Marking	G19
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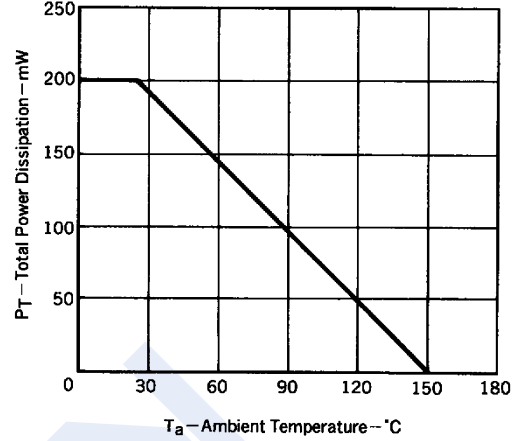
## N-Channel MOSFET 2SK1657

### Typical Characteristics

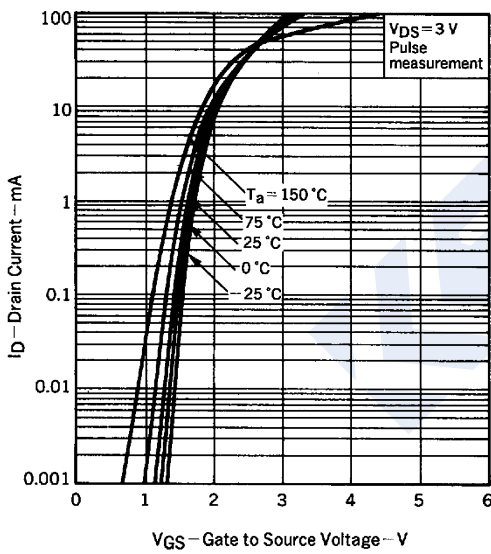
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



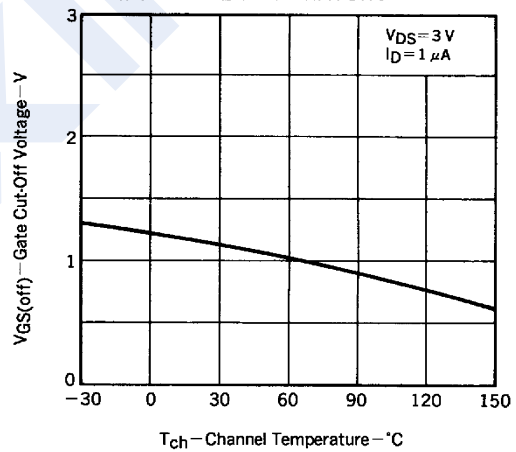
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



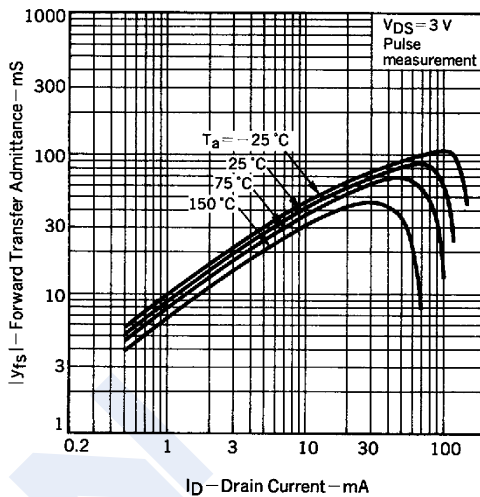
TRANSFER CHARACTERISTICS



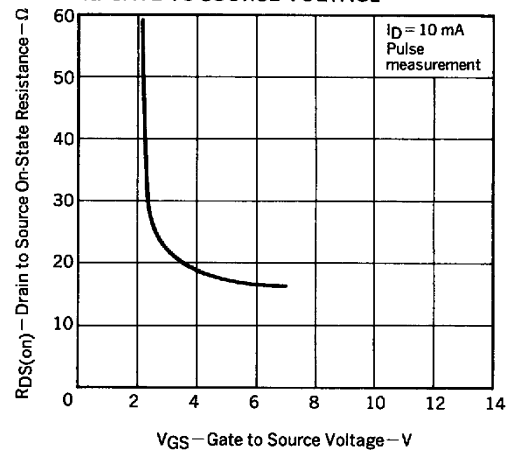
GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE



FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



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



## N-Channel MOSFET 2SK1657

### Typical Characteristics

