



# CHENMKO ENTERPRISE CO.,LTD

## SURFACE MOUNT

### N-Channel Enhancement Mode Field Effect Transistor

VOLTAGE 30 Volts CURRENT 100 mAmpere

2SK3541SPT

Lead free devices

#### APPLICATION

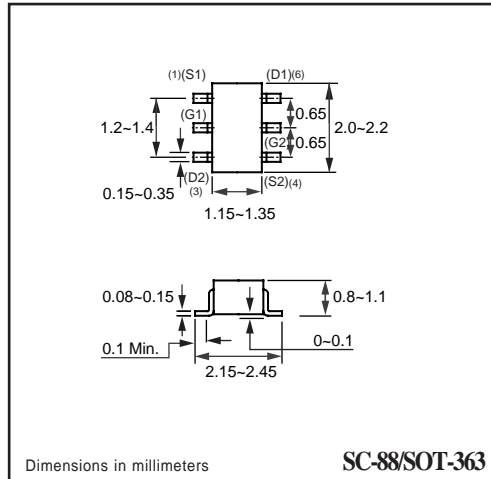
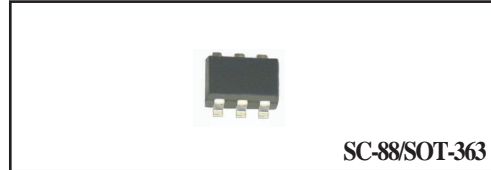
- \* Interfacing, switching (30V, 100mA)

#### FEATURE

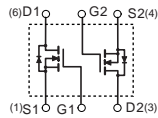
- \* Small surface mounting type. (SC-88/SOT-363)
- \* Low on-resistance
- \* Fast switching speed
- \* Easily designed drive circuits
- \* Easy to parallel

#### CONSTRUCTION

Silicon N-Channel MOSFET



#### CIRCUIT



#### Absolute Maximum Ratings $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	2SK3541SPT	Units
$V_{DSS}$	Drain-Source Voltage	30	V
$V_{GSS}$	Gate-Source Voltage - Continuous	$\pm 20$	V
$I_D$	Drain Current - Continuous	100	mA
	- Pulsed (Note1)	400	mA
$I_{DR}$	Reverse Drain Current - Continuous	100	mA
	- Pulsed (Note1)	400	mA
$P_D$	Power Dissipation (Note2)	150	mW
$T_J$	Operating Temperature Range	-55 to 150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-55 to 150	$^\circ\text{C}$

Note:

1.  $P_w < 10\mu\text{A}$ , Duty cycle  $< 1\%$
2. With each pin mounted on the recommended land

2007-02

## RATING CHARACTERISTIC CURVES ( 2SK3541SPT )

**Electrical Characteristics**  $T_A = 25^\circ\text{C}$  unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Units
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### OFF CHARACTERISTICS

$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_D = 10\mu\text{A}$	30			V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS} = 30\text{ V}, V_{GS} = 0\text{ V}$			1	$\mu\text{A}$
					0.5	$\text{mA}$
$I_{GSSF}$	Gate - Body Leakage, Forward	$V_{GS} = 20\text{ V}, V_{DS} = 0\text{ V}$			1	$\mu\text{A}$
$I_{GSSR}$	Gate - Body Leakage, Reverse	$V_{GS} = -20\text{ V}, V_{DS} = 0\text{ V}$			-1	$\mu\text{A}$

### ON CHARACTERISTICS

$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = 3\text{ V}, I_D = 100\mu\text{A}$	0.8		1.65	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS} = 4.0\text{ V}, I_D = 10\text{ mA}$		5.0	8.0	$\Omega$
		$V_{GS} = 2.5\text{ V}, I_D = 1.0\text{ mA}$		7.0	13	
$g_{FS}$	Forward Transconductance	$V_{DS} = 3.0\text{ V}, I_D = 10\text{ mA}$	20			$\text{mS}$

### DYNAMIC CHARACTERISTICS

$C_{iss}$	Input Capacitance	$V_{DS} = 5.0\text{ V}, V_{GS} = 0\text{ V},$ $f = 1.0\text{ MHz}$		13		$\text{pF}$
$C_{oss}$	Output Capacitance			9		
$C_{rss}$	Reverse Transfer Capacitance			4		
$t_{on}$	Turn-On Time	$V_{DD} = 5.0\text{ V}, R_L = 500\Omega,$ $I_D = 10\text{ mA}, V_{GS} = 5.0\text{ V},$ $R_{GEN} = 10\Omega$		15		$\text{nS}$
$t_r$				35		
$t_{off}$	Turn-Off Time	$V_{DD} = 5.0\text{ V}, R_L = 500\Omega,$ $I_D = 10\text{ mA}, V_{GS} = 5.0\text{ V},$ $R_{GEN} = 10\Omega$		80		$\text{nS}$
$t_f$				80		

## RATING CHARACTERISTIC CURVES ( 2SK3541SPT )

### Typical Electrical Characteristics

FIG. 1 TYPICAL TRANSFER CHARACTERISTICS

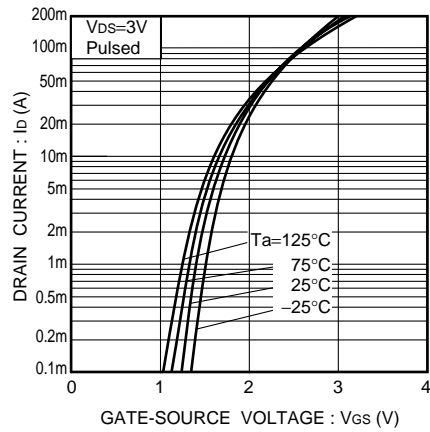


FIG. 2 REVERSE DRAIN CURRENT V.S SOURCE-DRAIN VOLTAGE

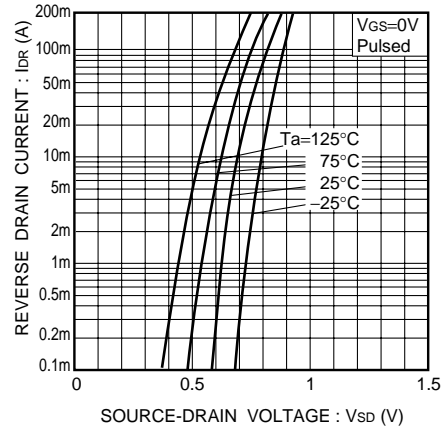


FIG. 3 GATE THRESHOLD VOLTAGE V.S CHANNEL TEMPERATURE

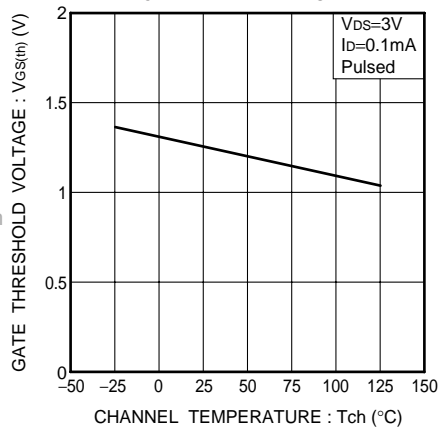
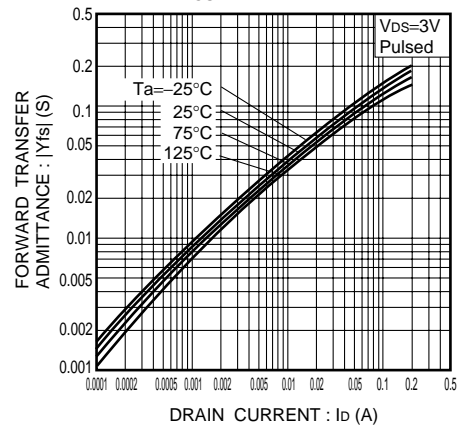


FIG. 4 FORWARD TRANSFER ADMITTANCE V.S DRAIN CURRENT



## RATING CHARACTERISTIC CURVES ( 2SK3541SPT )

### Typical Electrical Characteristics (continued)

FIG. 5 STATIC DRAIN-SOURCE ON-STATE RESISTANCE V.S DRAIN CURRENT

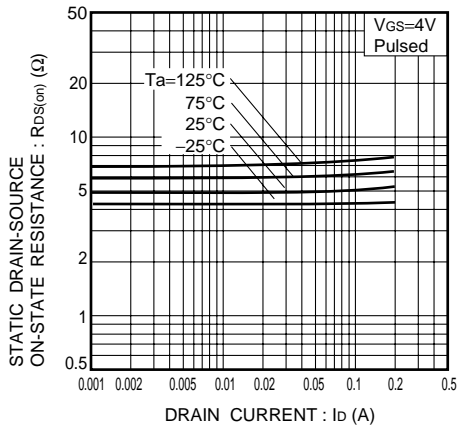


FIG. 6 STATIC DRAIN-SOURCE ON-STATE RESISTANCE V.S DRAIN CURRENT

