



# 2SK3850 — N-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

### Features

- Best suited for motor drive.
- Low ON-resistance.
- Low Qg.

### Specifications

#### Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		600	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±30	V
Drain Current (DC)	I <sub>D</sub>		0.7	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	2.8	A
Allowable Power Dissipation	P <sub>D</sub>		1.0	W
		Tc=25°C	15	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

#### Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	I <sub>D</sub> =1mA, V <sub>GS</sub> =0	600			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =600V, V <sub>GS</sub> =0			100	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±30V, V <sub>DS</sub> =0			±100	nA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =1mA	2.5		3.5	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =0.35A	280	560		mS
Static Drain-to-Source On-State Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =0.35A		14	18.5	Ω
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =20V, f=1MHz		96		pF
Output Capacitance	C <sub>oss</sub>	V <sub>DS</sub> =20V, f=1MHz		29		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>DS</sub> =20V, f=1MHz		16		pF

Marking :K3850

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# 2SK3850

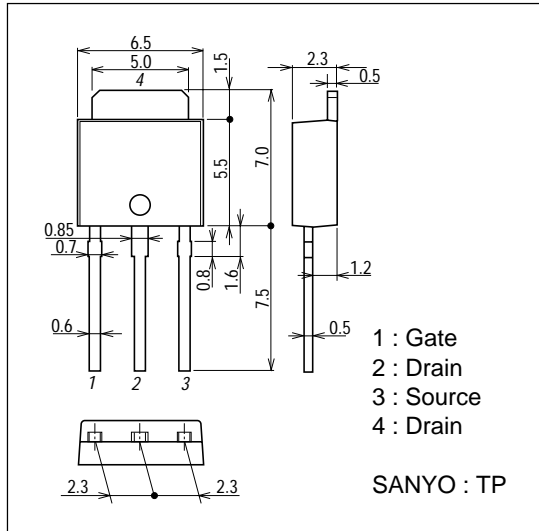
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_d(\text{on})$	See specified Test Circuit.		9		ns
Rise Time	$t_r$	See specified Test Circuit.		11		ns
Turn-OFF Delay Time	$t_d(\text{off})$	See specified Test Circuit.		16		ns
Fall Time	$t_f$	See specified Test Circuit.		50		ns
Total Gate Charge	$Q_g$	$V_{DS}=200V, V_{GS}=10V, I_D=0.7A$		4		nC
Diode Forward Voltage	$V_{SD}$	$I_S=0.7A, V_{GS}=0$		0.89	1.2	V

## Package Dimensions

unit : mm

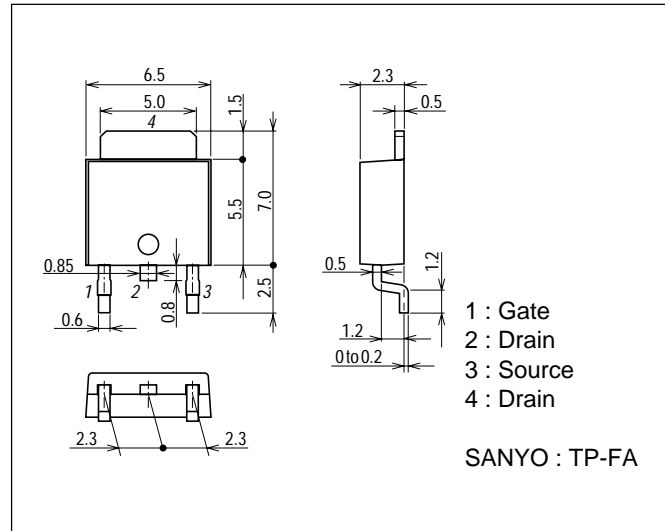
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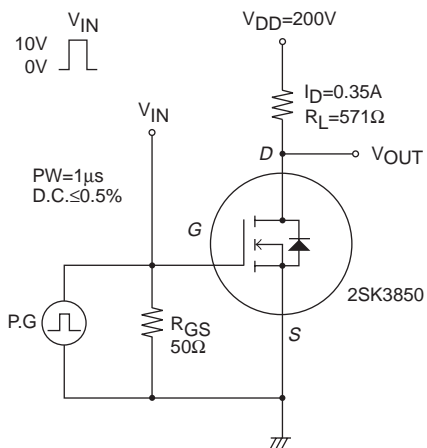
## Package Dimensions

unit : mm

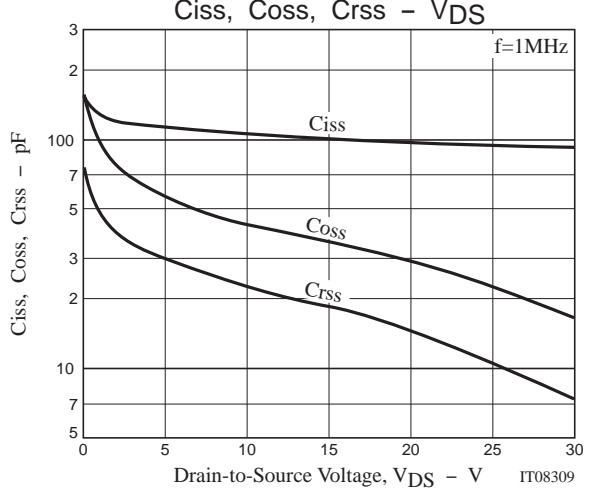
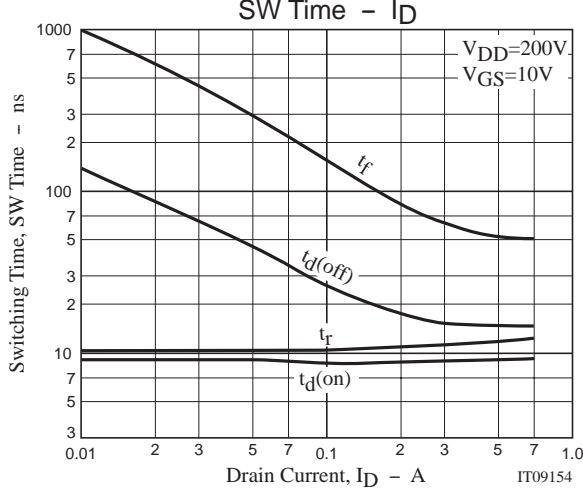
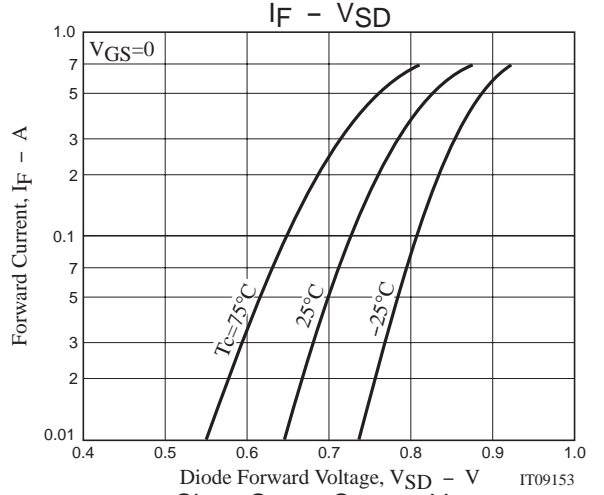
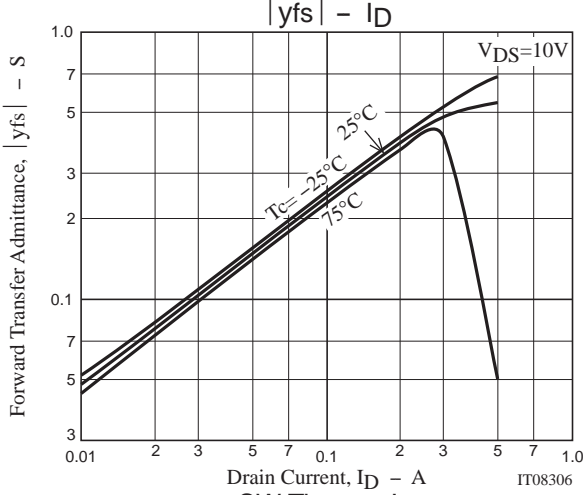
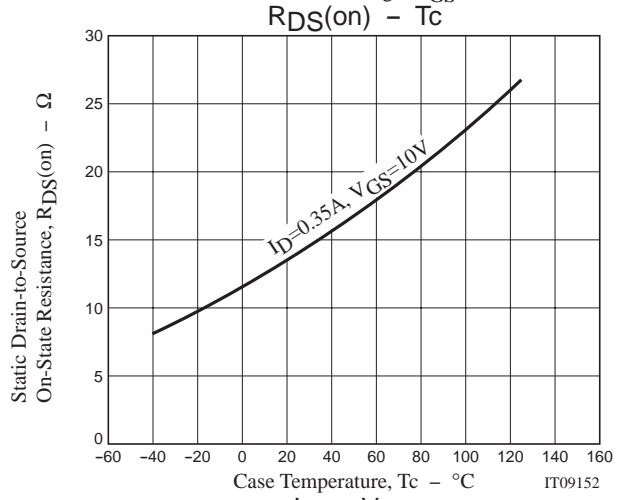
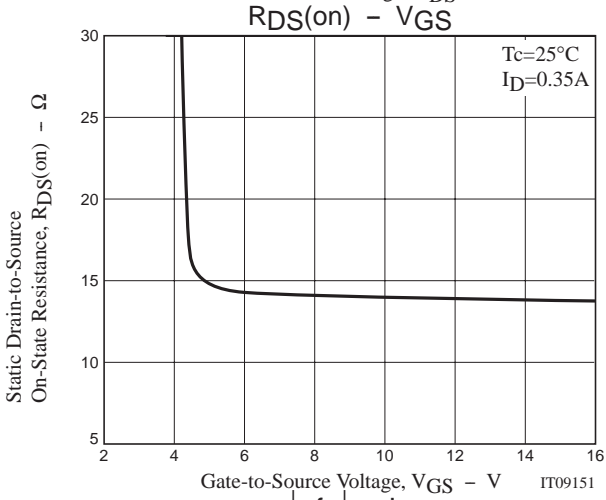
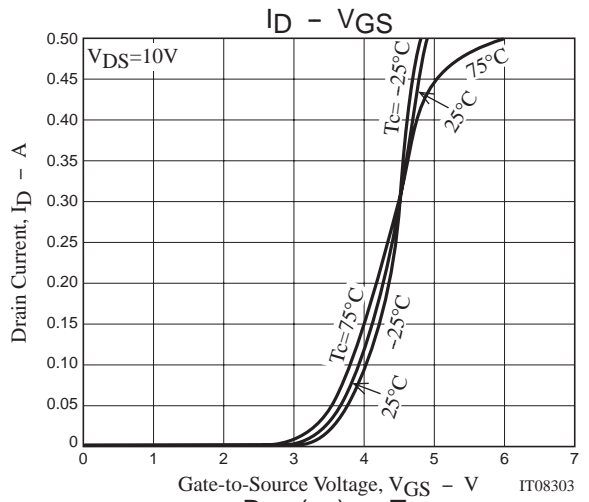
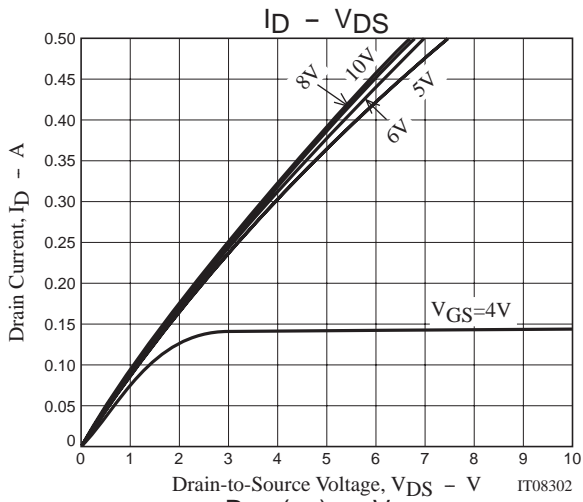
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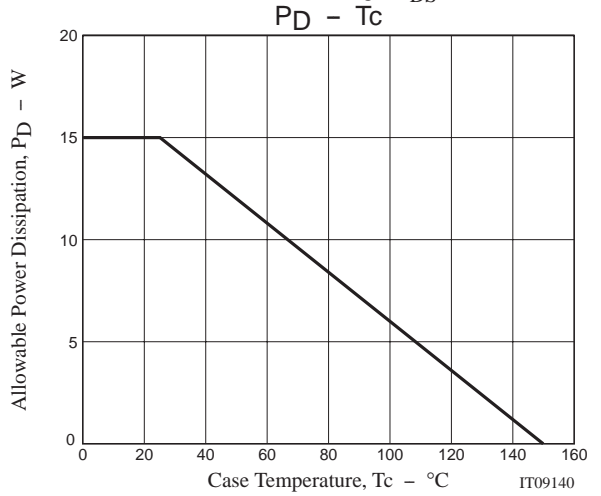
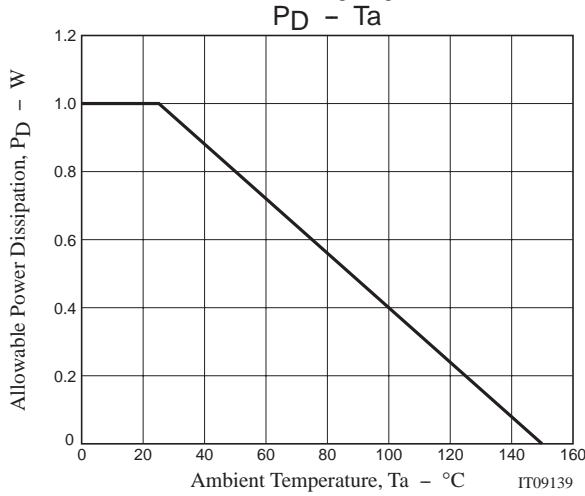
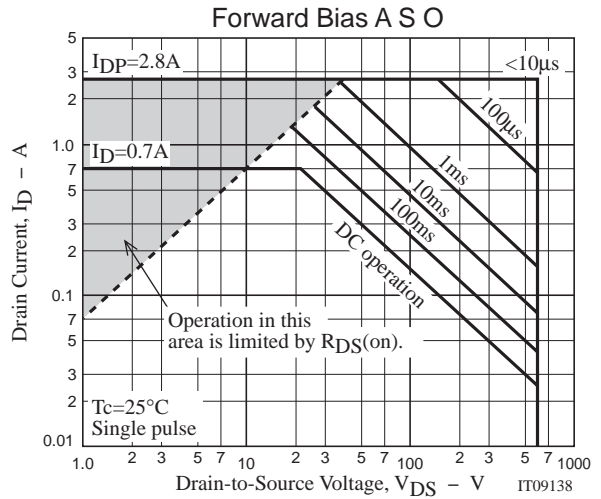
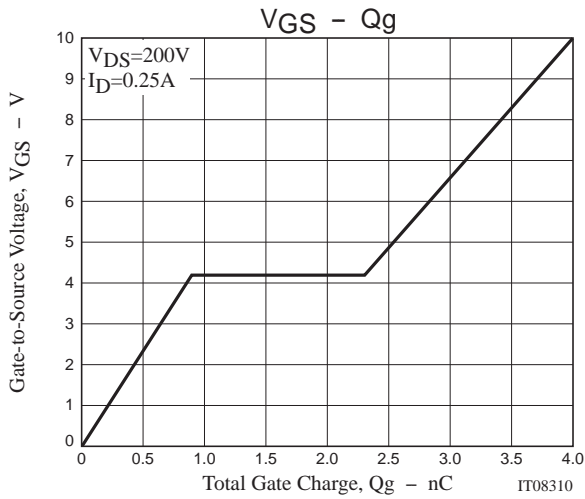
## Switching Time Test Circuit



# 2SK3850



## 2SK3850



Note on usage : Since the 2SK3850 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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