



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

2SK4177 — N-Channel Silicon MOSFET General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS(on)}=10\Omega$ (typ.)
- 10V drive
- Input capacitance $C_{iss}=380pF$ (typ.)

Specifications

Absolute Maximum Ratings at $T_a=25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		1500	V
Gate-to-Source Voltage	V_{GSS}		± 20	V
Drain Current (DC)	I_D		2	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	4	A
Allowable Power Dissipation	P_D	$T_c=25^\circ C$	80	W
Channel Temperature	T_{ch}		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$
Avalanche Energy (Single Pulse) *1	E_{AS}		41	mJ
Avalanche Current *2	I_{AV}		2	A

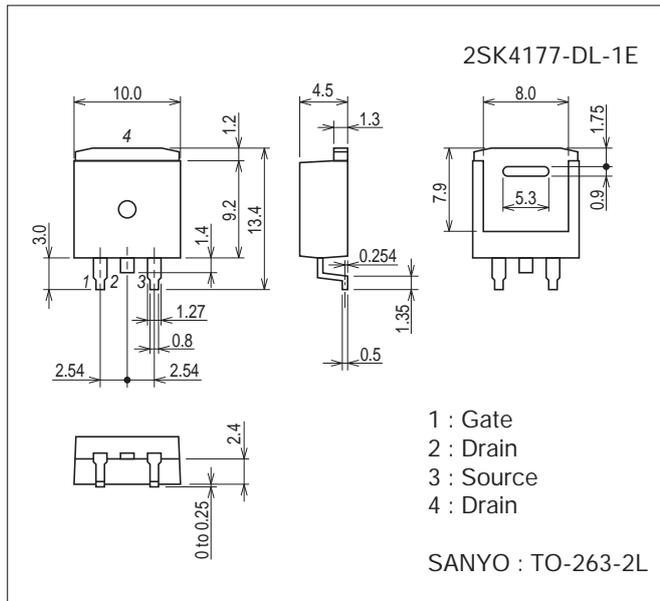
Note : *1 $V_{DD}=50V$, $L=20mH$, $I_{AV}=2A$ (Fig.1)

*2 $L \leq 20mH$, single pulse

Package Dimensions

unit : mm (typ)

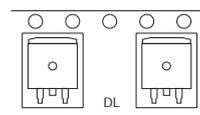
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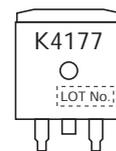
Product & Package Information

- Package : TO-263-2L
- JEITA, JEDEC : SC-83, TO-263
- Minimum Packing Quantity : 800 pcs./reel

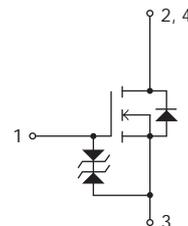
Packing Type: DL



Marking



Electrical Connection



2SK4177

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit	
			min	typ	max		
Drain-to-Source Breakdown Voltage	V(BR)DSS	I _D =1mA, V _{GS} =0V	1500			V	
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =1200V, V _{GS} =0V			100	μA	
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±16V, V _{DS} =0V			±10	μA	
Cutoff Voltage	V _{GS(off)}	V _{DS} =10V, I _D =1mA	2.5		3.5	V	
Forward Transfer Admittance	y _{fs}	V _{DS} =20V, I _D =1A	0.7	1.4		S	
Static Drain-to-Source On-State Resistance	R _{DS(on)}	I _D =1A, V _{GS} =10V		10	13	Ω	
Input Capacitance	C _{iss}	V _{DS} =30V, f=1MHz		380		pF	
Output Capacitance	C _{oss}				70		pF
Reverse Transfer Capacitance	C _{rss}				40		pF
Turn-ON Delay Time	t _{d(on)}	See Fig.2		12		ns	
Rise Time	t _r			37		ns	
Turn-OFF Delay Time	t _{d(off)}			152		ns	
Fall Time	t _f			59		ns	
Total Gate Charge	Q _g	V _{DS} =200V, V _{GS} =10V, I _D =2A		37.5		nC	
Gate-to-Source Charge	Q _{gs}			2.7		nC	
Gate-to-Drain "Miller" Charge	Q _{gd}			20		nC	
Diode Forward Voltage	V _{SD}	I _S =2A, V _{GS} =0V		0.88	1.2	V	

Fig.1 Unclamped Inductive Switching Test Circuit

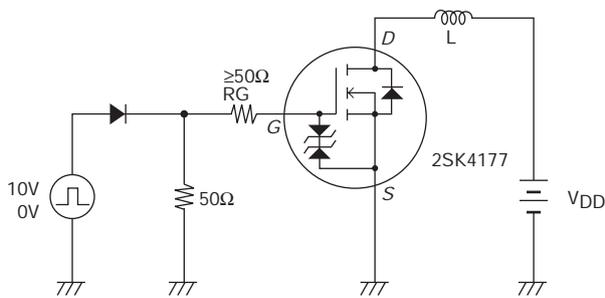
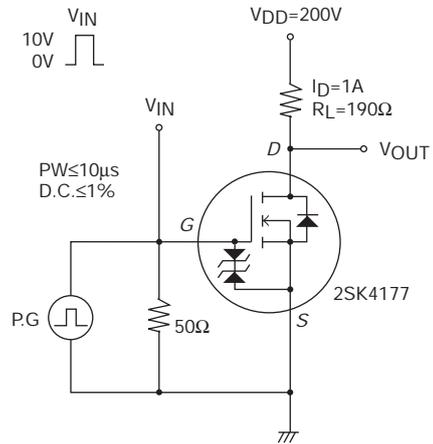
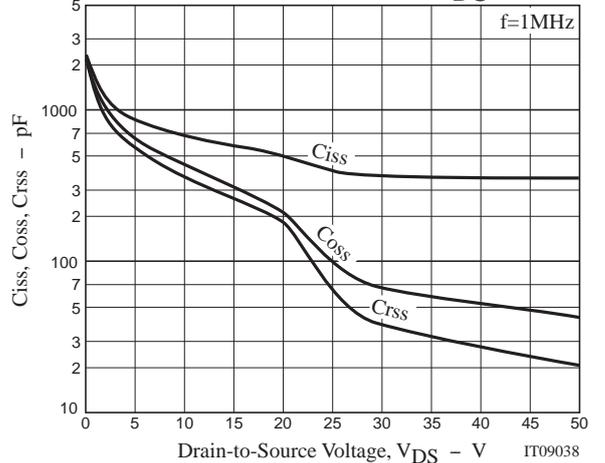
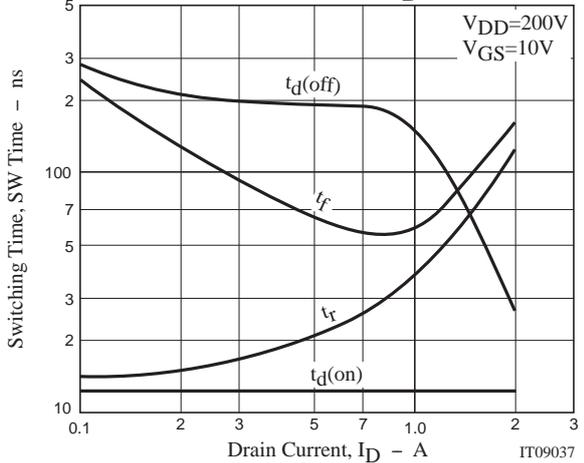
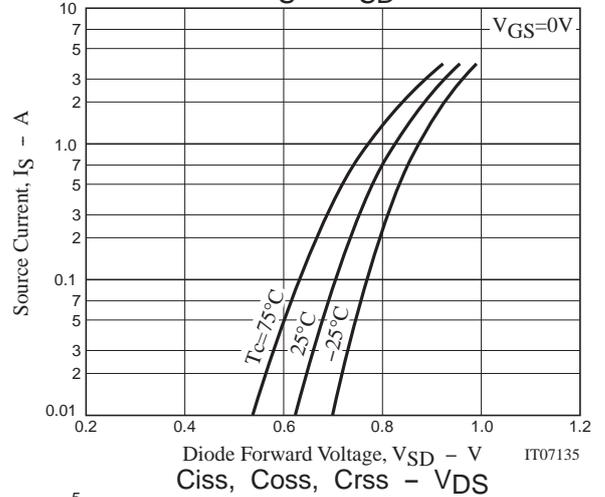
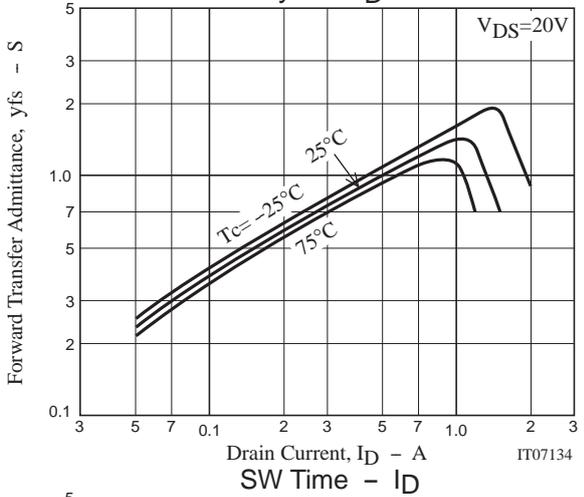
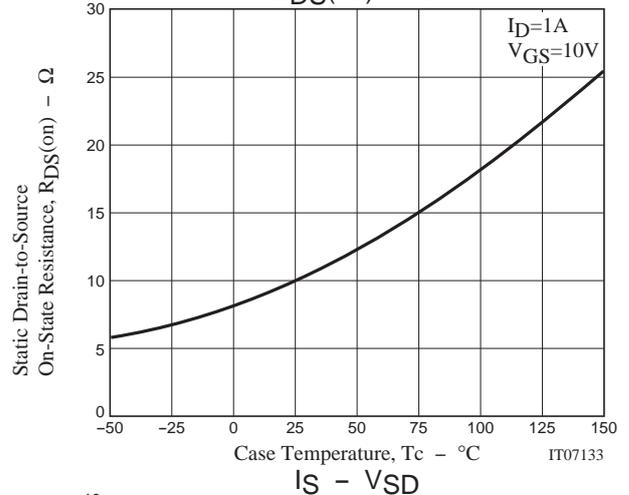
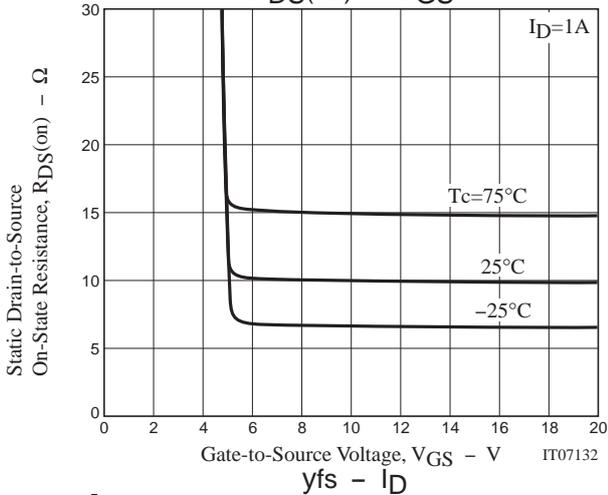
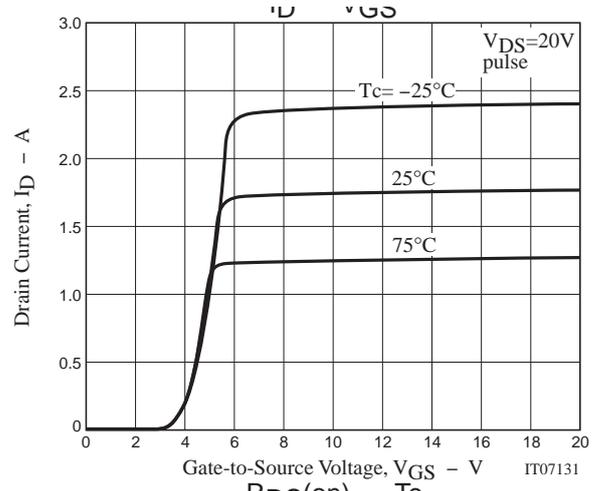
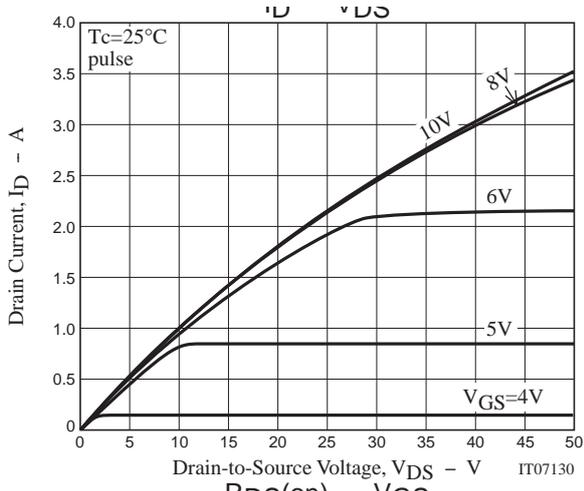


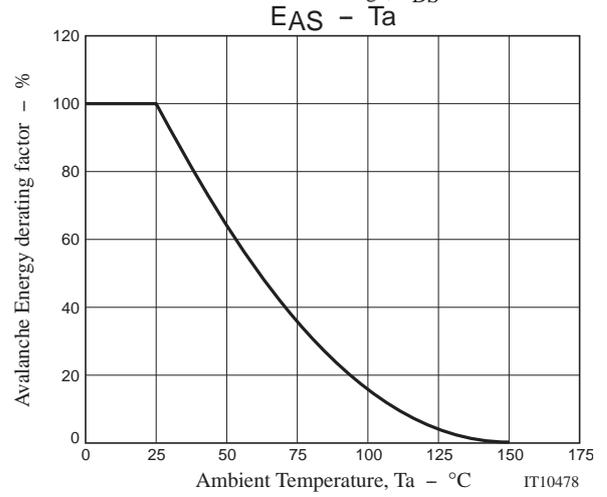
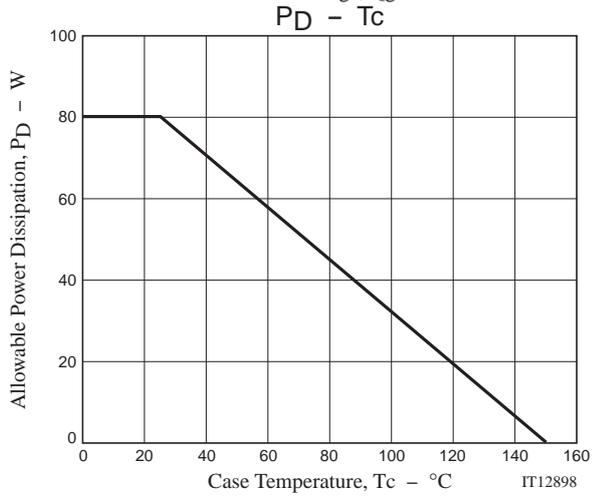
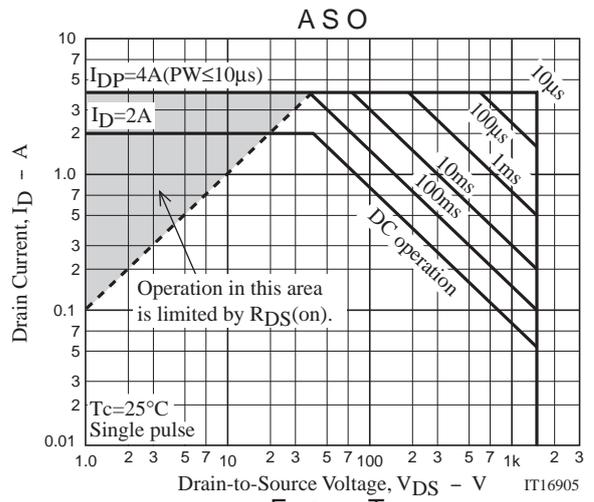
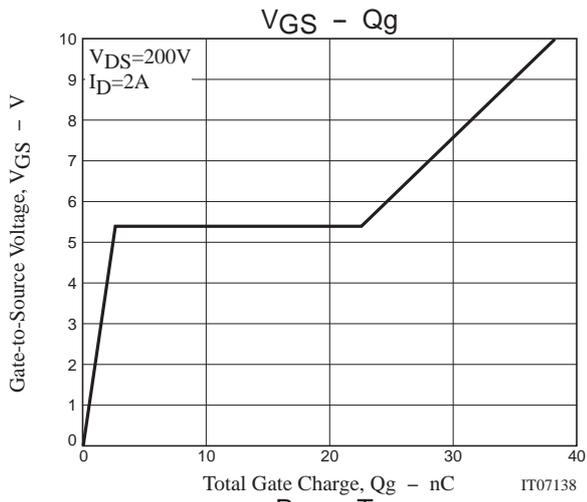
Fig.2 Switching Time Test Circuit



Ordering Information

Device	Package	Shipping	memo
2SK4177-DL-1E	TO-263-2L	800pcs./reel	Pb Free

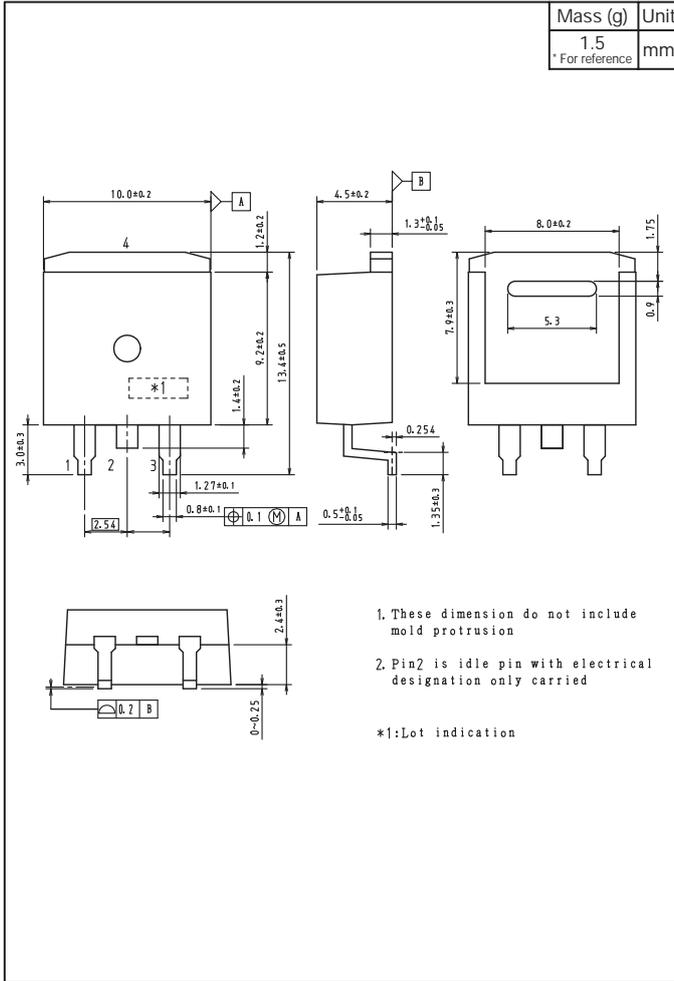




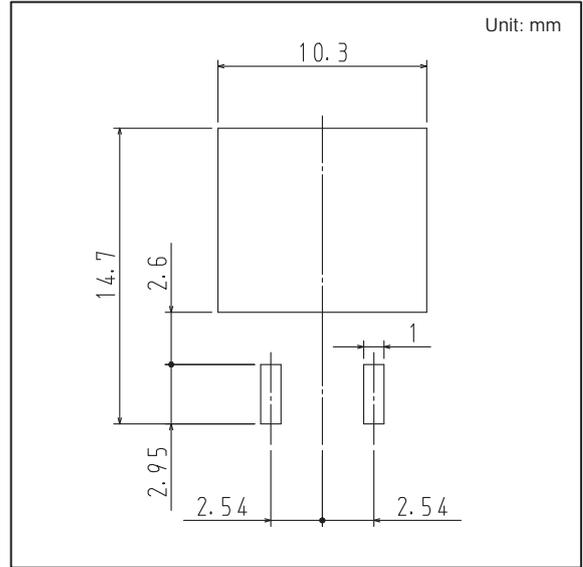
2SK4177

Outline Drawing

2SK4177-DL-1E



Land Pattern Example



Note on usage : Since the 2SK4177 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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