



2SK4177

N-Channel Power MOSFET 1500V, 2A, 13Ω, TO-263-2L

ON Semiconductor®

http://onsemi.com

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)

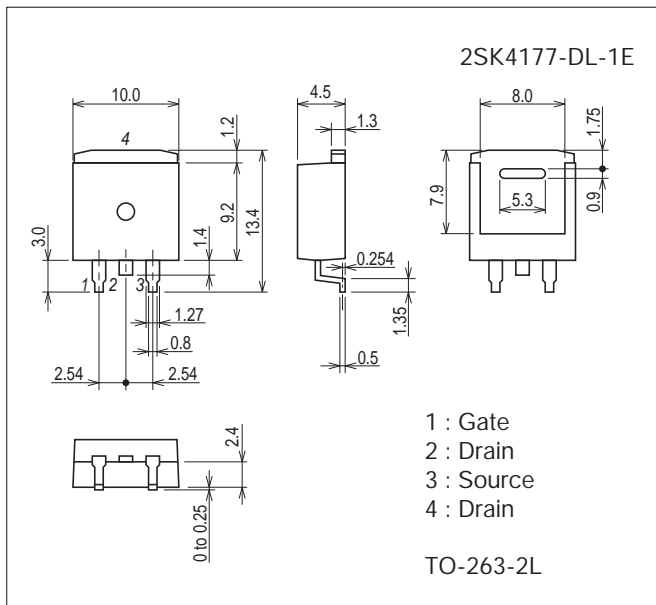
*2 $L \leq 20mH$, single pulse

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Package Dimensions

unit : mm (typ)

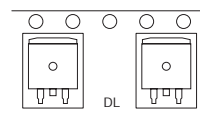
7535-001



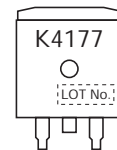
Product & Package Information

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

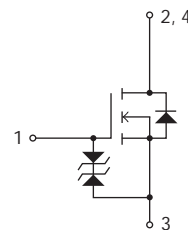
Packing Type: DL



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

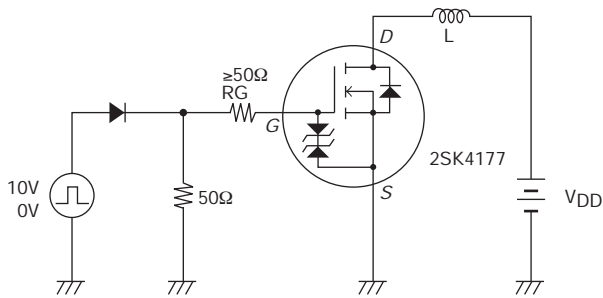
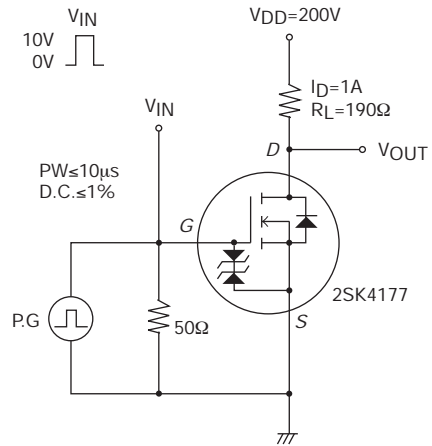
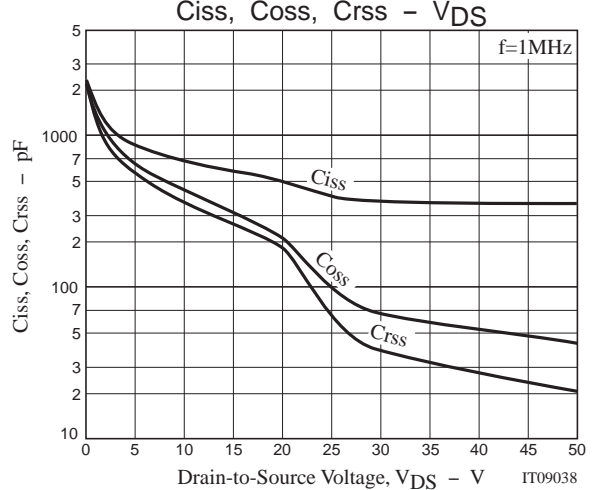
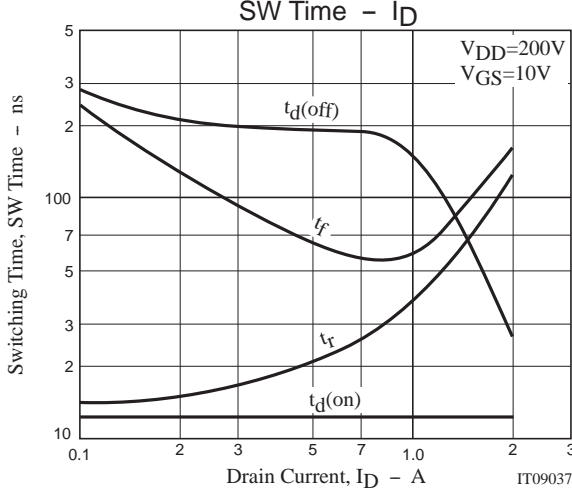
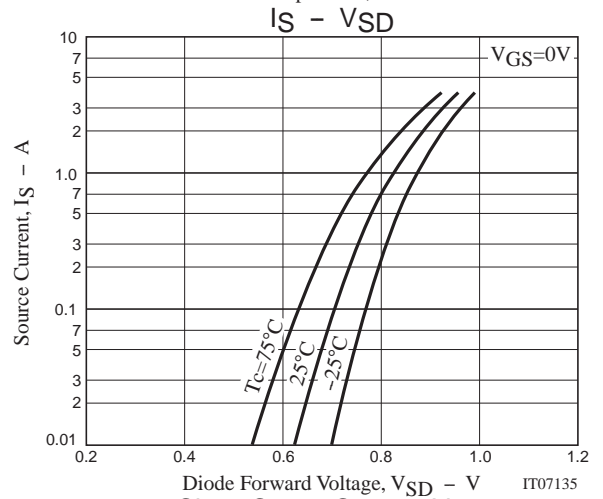
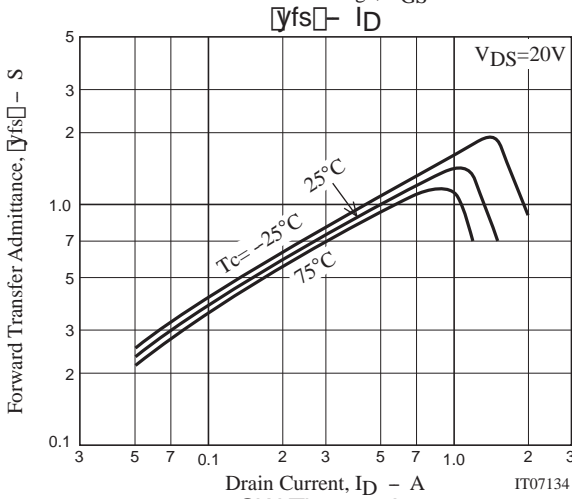
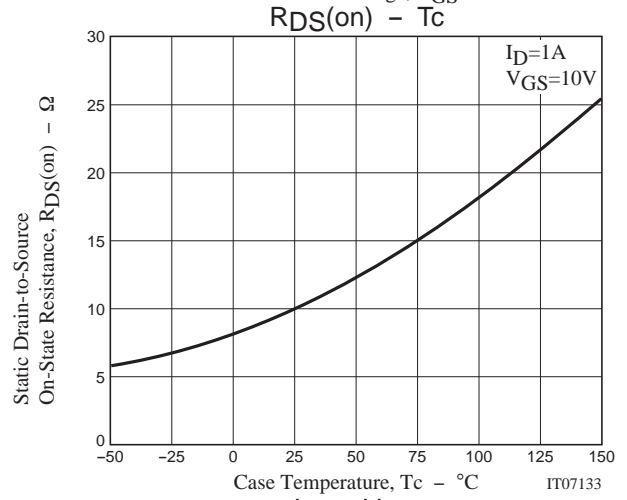
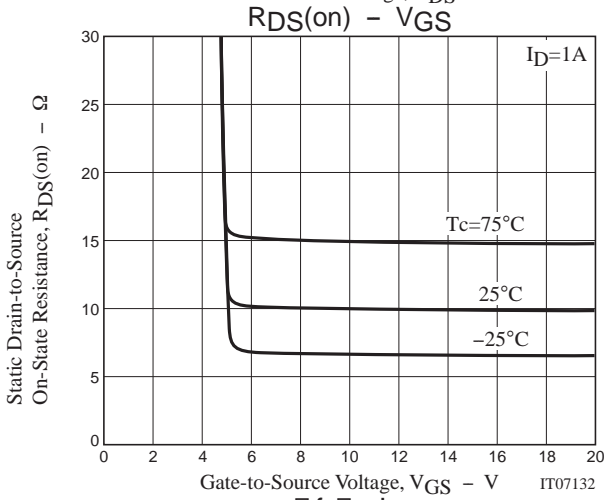
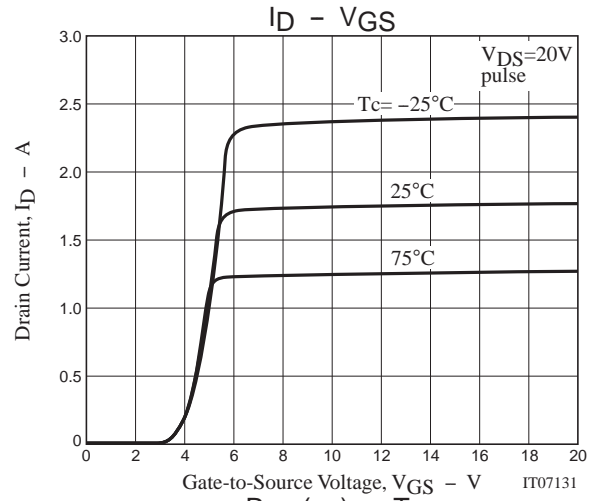
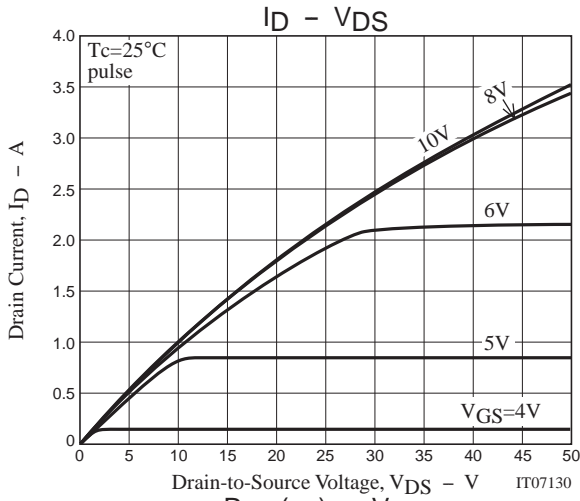


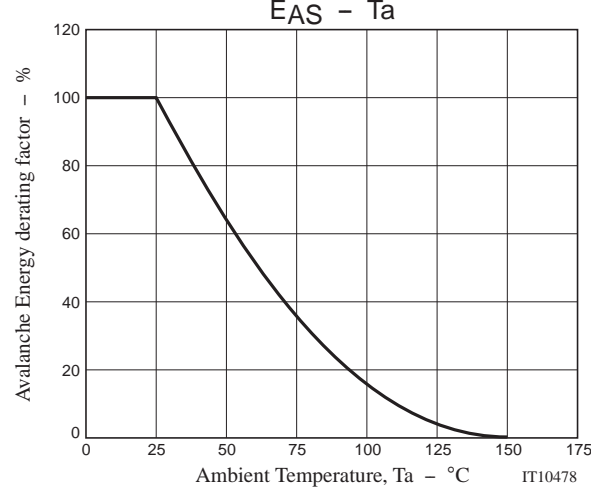
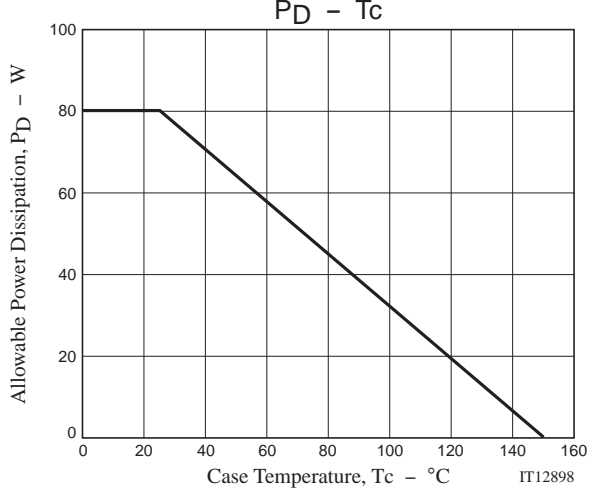
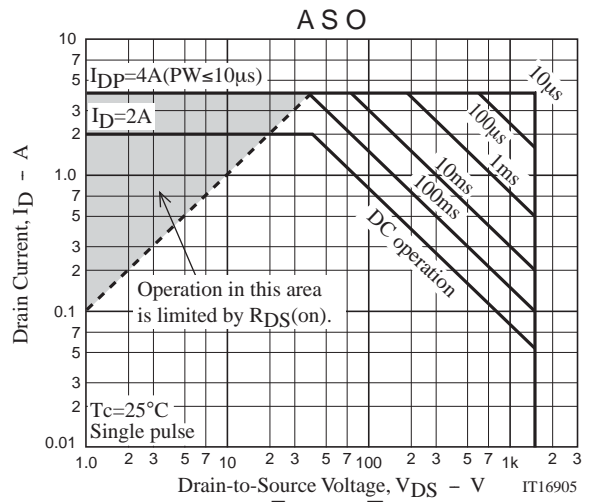
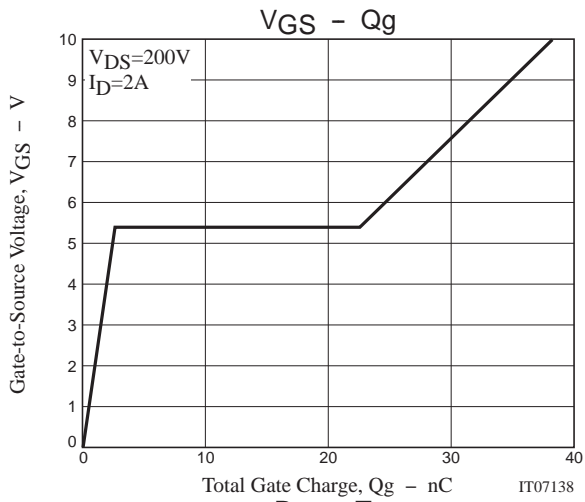
Fig.2 Switching Time Test Circuit



Ordering Information

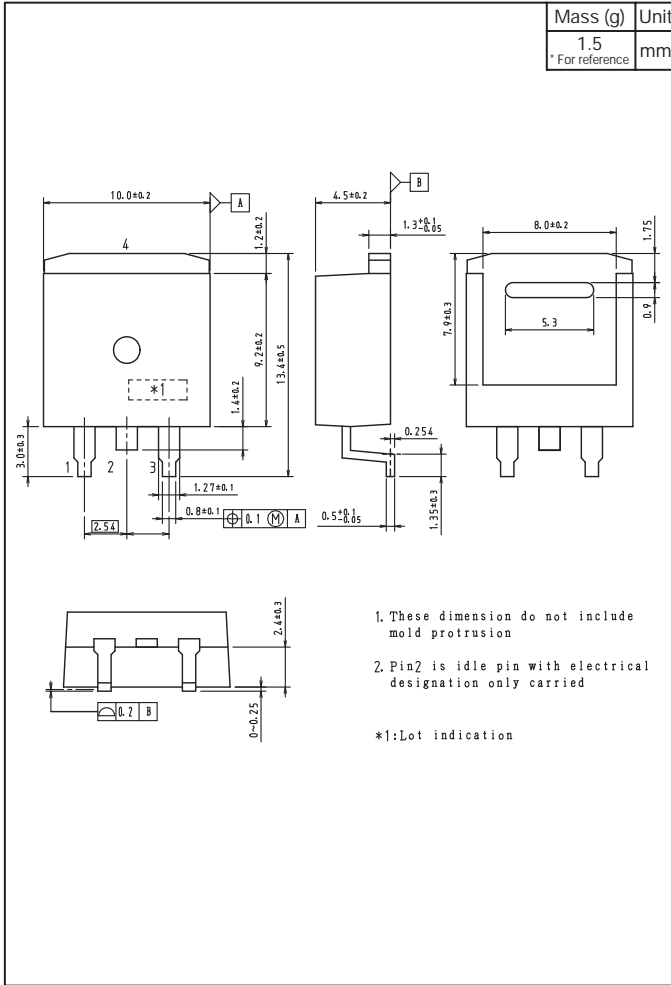
Device	Package	Shipping	memo
2SK4177-DL-1E	TO-263-2L	800pcs./reel	Pb Free



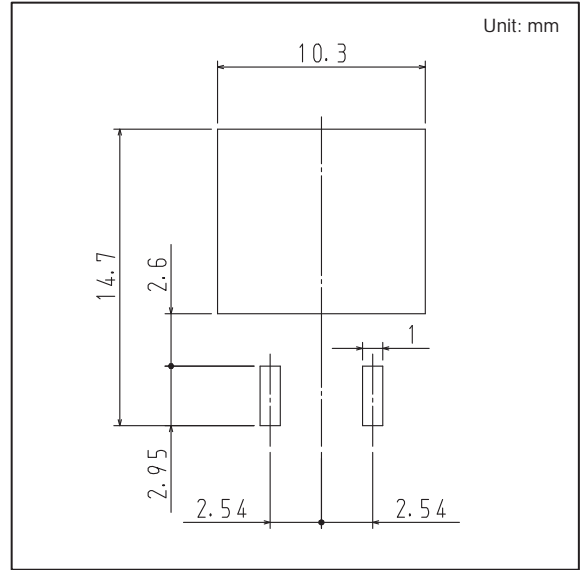


2SK4177

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.

ON Semiconductor and the ON logo are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of SCILLC's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[ON Semiconductor:](#)

[2SK4177-DL-E](#) [2SK4177-E](#) [2SK4177-DL-1E](#)