
2SK1157, 2SK1158

Silicon N-Channel MOS FET

HITACHI

Application

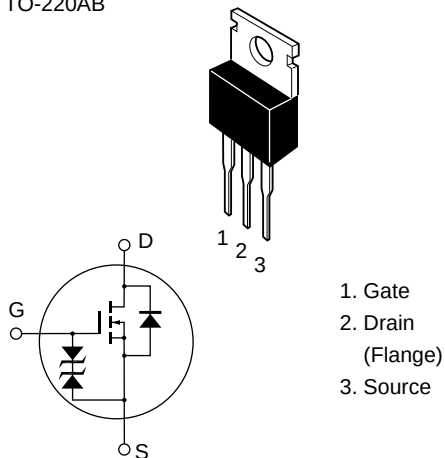
High speed power switching

Features

- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator, DC-DC converter and motor driver

Outline

TO-220AB



2SK1157, 2SK1158

Absolute Maximum Ratings (Ta = 25°C)

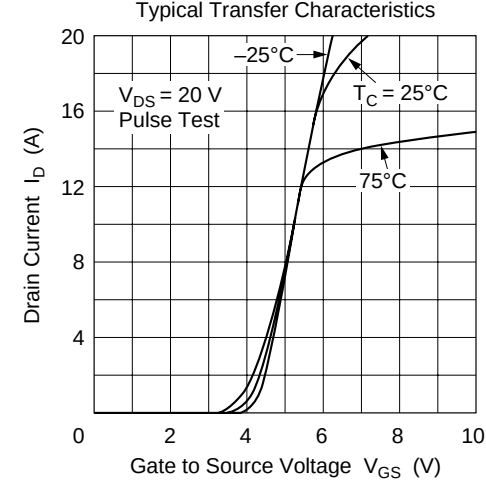
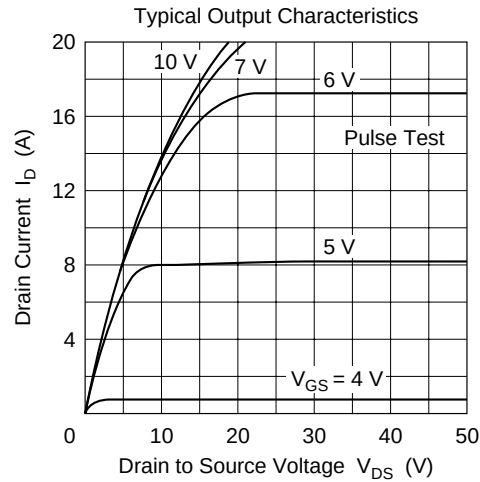
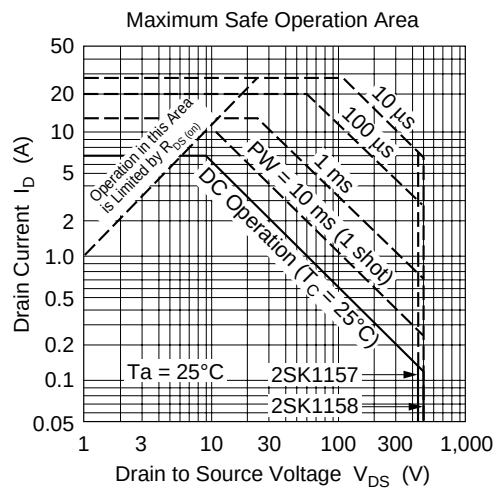
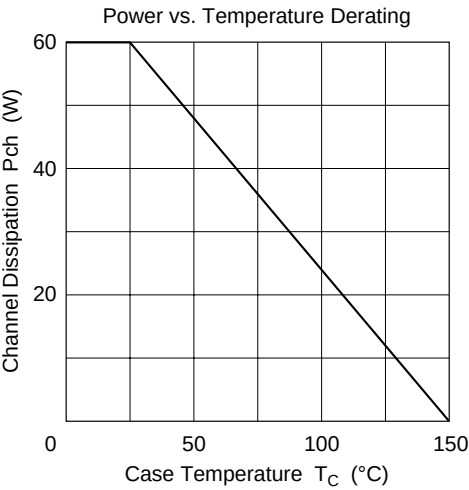
Item		Symbol	Ratings	Unit
Drain to source voltage	2SK1157	V_{DSS}	450	V
	2SK1158		500	
Gate to source voltage		V_{GSS}	±30	V
Drain current		I_D	7	A
Drain peak current		$I_{D(pulse)}^{*1}$	28	A
Body to drain diode reverse drain current		I_{DR}	7	A
Channel dissipation		Pch^{*2}	60	W
Channel temperature		Tch	150	°C
Storage temperature		Tstg	−55 to +150	°C

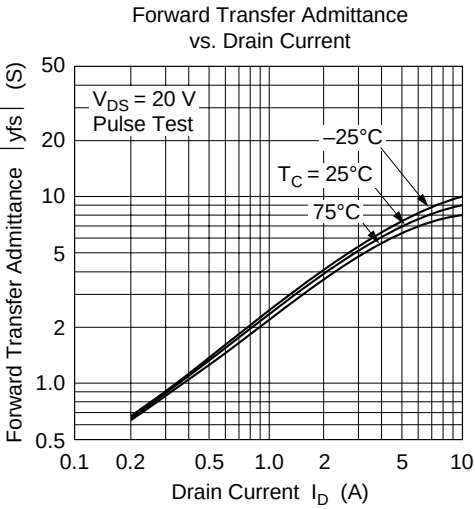
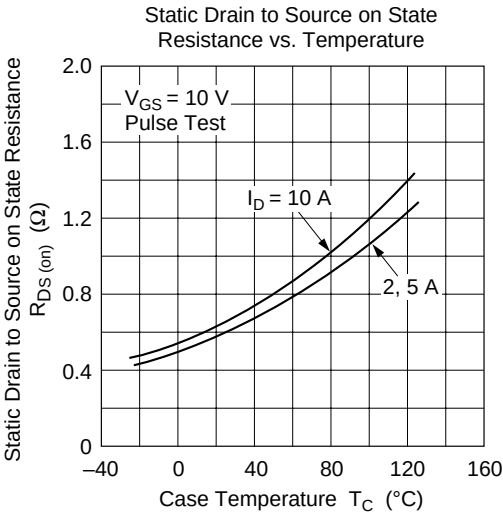
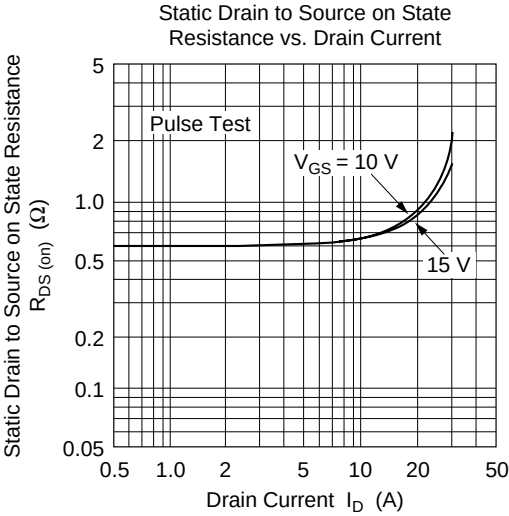
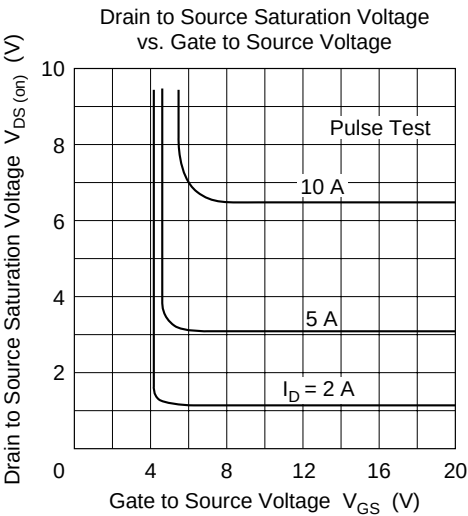
Note: 1. $PW \leq 10 \mu s$, duty cycle $\leq 1\%$
2. Value at $T_c = 25^\circ C$

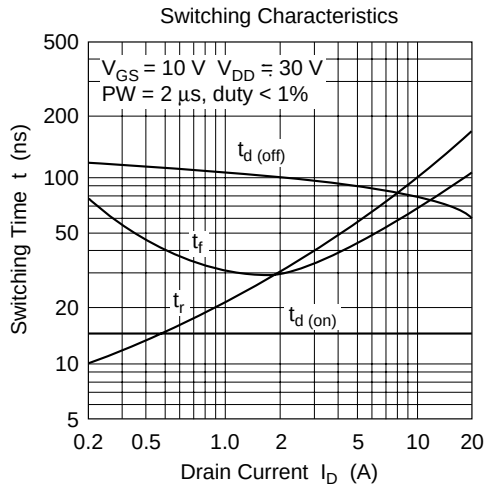
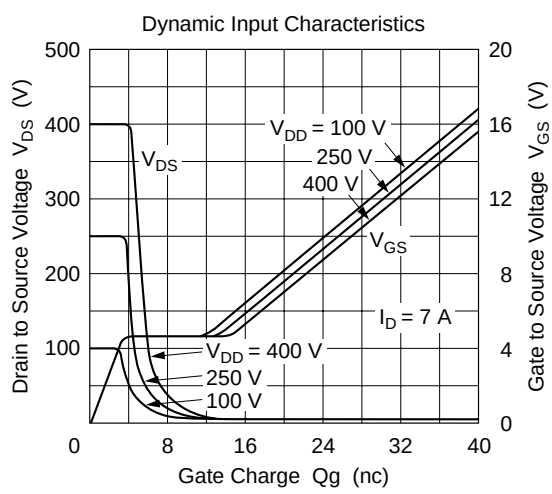
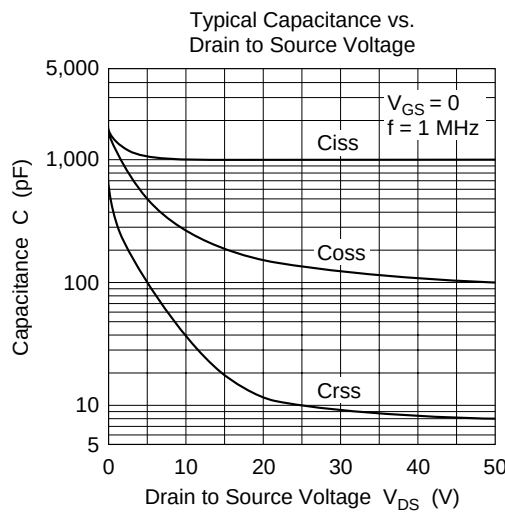
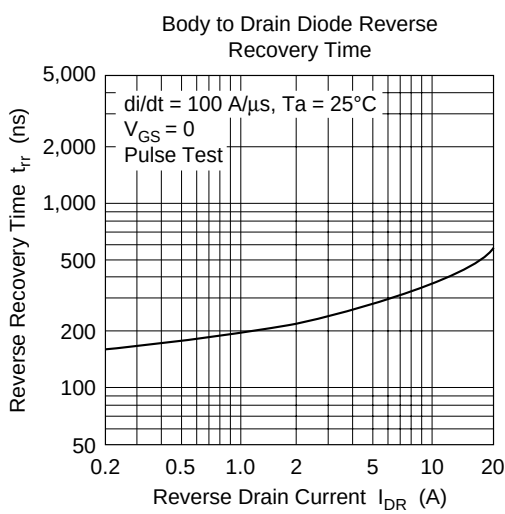
Electrical Characteristics (Ta = 25°C)

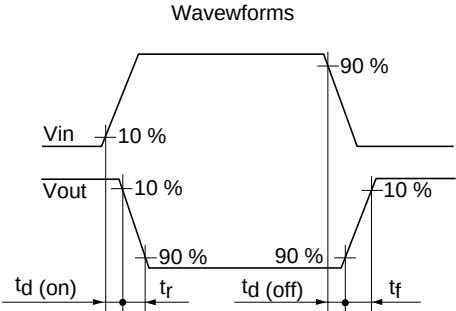
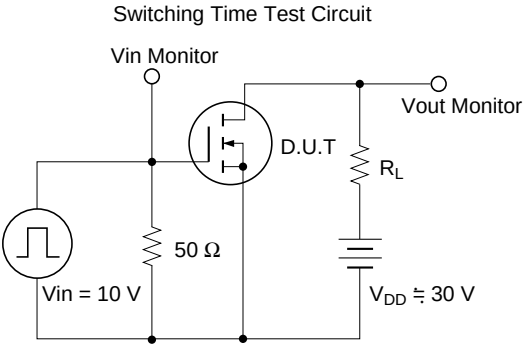
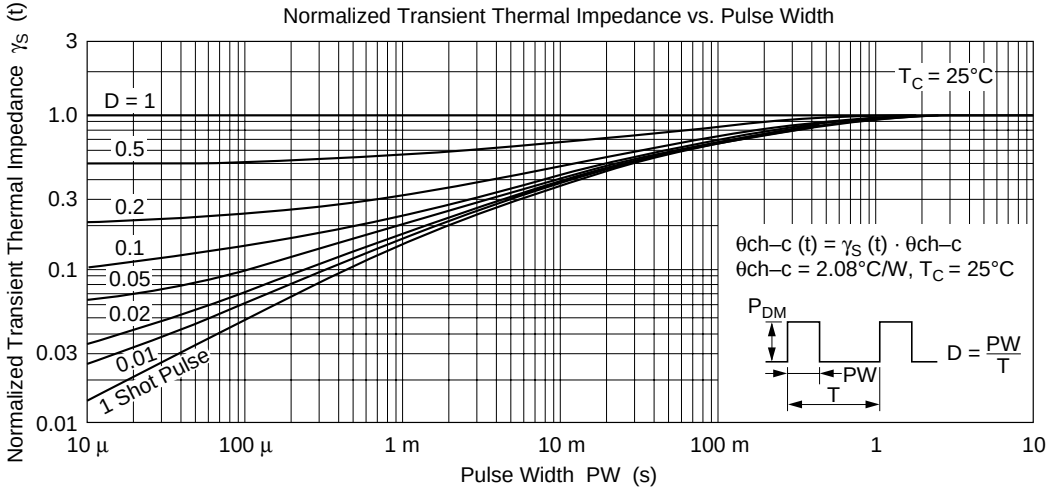
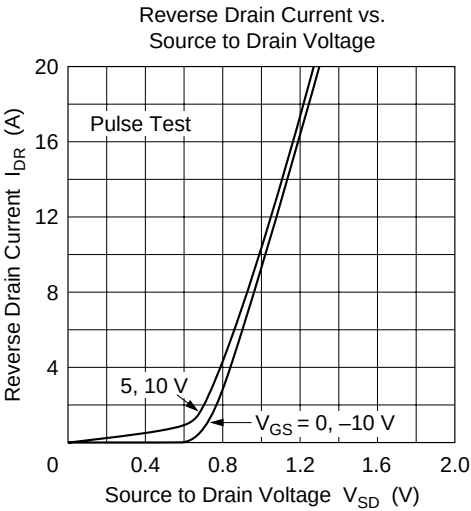
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1157 $V_{(BR)DSS}$ 2SK1158	450 500	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	± 30	—	—	V	$I_G = \pm 100 \mu\text{A}$, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 25 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	2SK1157 I_{DSS} 2SK1158	—	—	250	μA	$V_{DS} = 360 \text{ V}$, $V_{GS} = 0$ $V_{DS} = 400 \text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	2.0	—	3.0	V	$I_D = 1 \text{ mA}$, $V_{DS} = 10 \text{ V}$
Static Drain to source on state resistance	2SK1157 $R_{DS(on)}$ 2SK1158	— —	0.6 0.7	0.8 0.9	Ω	$I_D = 4 \text{ A}$, $V_{GS} = 10 \text{ V}^{*1}$
Forward transfer admittance	$ y_{fs} $	4.0	6.5	—	S	$I_D = 4 \text{ A}$, $V_{DS} = 10 \text{ V}^{*1}$
Input capacitance	C_{iss}	—	1050	—	pF	$V_{DS} = 10 \text{ V}$, $V_{GS} = 0$,
Output capacitance	C_{oss}	—	280	—	pF	$f = 1 \text{ MHz}$
Reverse transfer capacitance	C_{rss}	—	40	—	pF	
Turn-on delay time	$t_{d(on)}$	—	15	—	ns	$I_D = 4 \text{ A}$, $V_{GS} = 10 \text{ V}$,
Rise time	t_r	—	55	—	ns	$R_L = 7.5 \Omega$
Turn-off delay time	$t_{d(off)}$	—	95	—	ns	
Fall time	t_f	—	40	—	ns	
Body to drain diode forward voltage	V_{DF}	—	0.95	—	V	$I_F = 7 \text{ A}$, $V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	320	—	ns	$I_F = 7 \text{ A}$, $V_{GS} = 0$, $di_F/dt = 100 \text{ A}/\mu\text{s}$

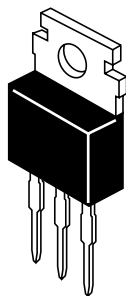
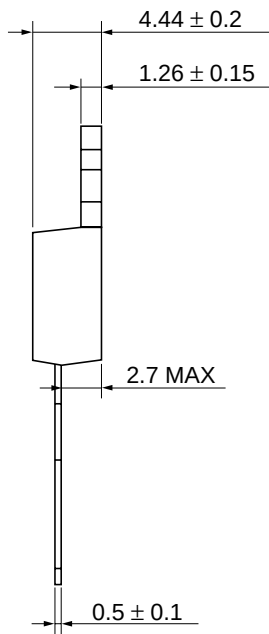
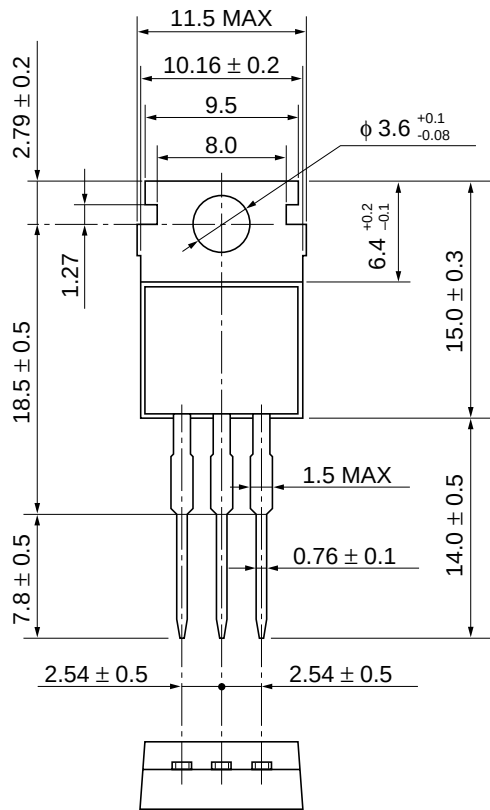
Note: 1. Pulse test











Hitachi Code	TO-220AB
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	1.8 g

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