
2SK1155, 2SK1156

Silicon N-Channel MOS FET

HITACHI

Application

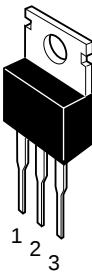
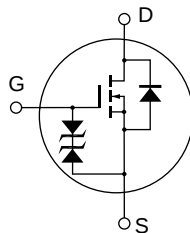
High speed power switching

Features

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

Outline

TO-220AB



1. Gate
2. Drain
(Flange)
3. Source

2SK1155, 2SK1156

Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	Ratings	Unit
Drain to source voltage	2SK1155	V_{DSS}	450	V
	2SK1156		500	
Gate to source voltage		V_{GSS}	±30	V
Drain current		I_D	5	A
Drain peak current		$I_{D(pulse)}^{*1}$	20	A
Body to drain diode reverse drain current		I_{DR}	5	A
Channel dissipation		P_{ch}^{*2}	50	W
Channel temperature		T_{ch}	150	°C
Storage temperature		T_{stg}	−55 to +150	°C

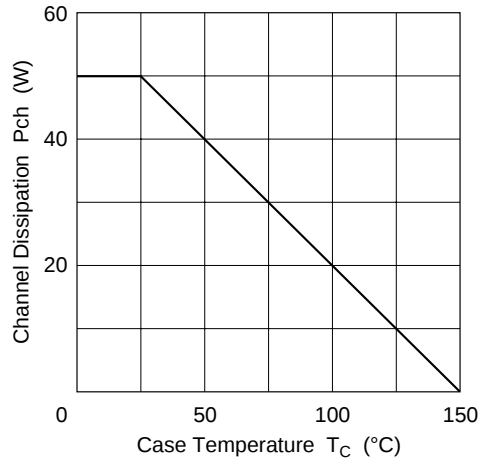
Note: 1. $PW \leq 10 \mu s$, duty cycle $\leq 1\%$
2. Value at $T_c = 25^\circ C$

Electrical Characteristics (Ta = 25°C)

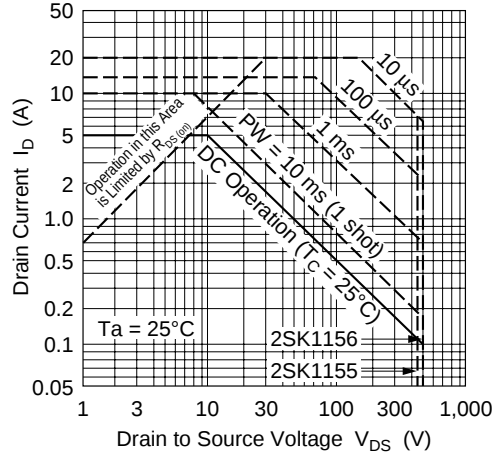
Item		Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1155 2SK1156	$V_{(BR)DSS}$	450 500	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage		$V_{(BR)GSS}$	± 30	—	—	V	$I_G = \pm 100 \text{ }\mu\text{A}$, $V_{DS} = 0$
Gate to source leak current		I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 25 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	2SK1155 2SK1156	I_{DSS}	—	—	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	2SK1155 2SK1156	$R_{DS(on)}$	— —	1.0 1.2	1.4 1.5	Ω	$I_D = 2.5 \text{ A}$, $V_{GS} = 10 \text{ V}^{*1}$
Forward transfer admittance		$ y_{fs} $	2.5	4.0	—	S	$I_D = 2.5 \text{ A}$, $V_{DS} = 10 \text{ V}^{*1}$
Input capacitance		C_{iss}	—	640	—	pF	$V_{DS} = 10 \text{ V}$, $V_{GS} = 0$,
Output capacitance		C_{oss}	—	160	—	pF	$f = 1 \text{ MHz}$
Reverse transfer capacitance		C_{rss}	—	20	—	pF	
Turn-on delay time		$t_{d(on)}$	—	10	—	ns	$I_D = 2.5 \text{ A}$, $V_{GS} = 10 \text{ V}$,
Rise time		t_r	—	25	—	ns	$R_L = 12 \text{ }\Omega$
Turn-off delay time		$t_{d(off)}$	—	50	—	ns	
Fall time		t_f	—	30	—	ns	
Body to drain diode forward voltage		V_{DF}	—	0.95	—	V	$I_F = 5 \text{ A}$, $V_{GS} = 0$
Body to drain diode reverse recovery time		t_{rr}	—	300	—	ns	$I_F = 5 \text{ A}$, $V_{GS} = 0$, $di_F/dt = 100 \text{ A}/\mu\text{s}$

Note: 1. Pulse test

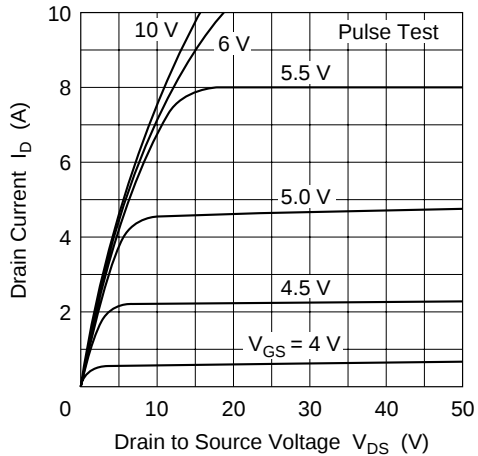
Power vs. Temperature Derating



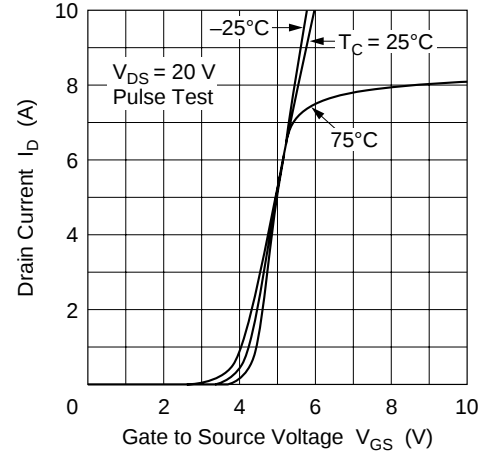
Maximum Safe Operation Area

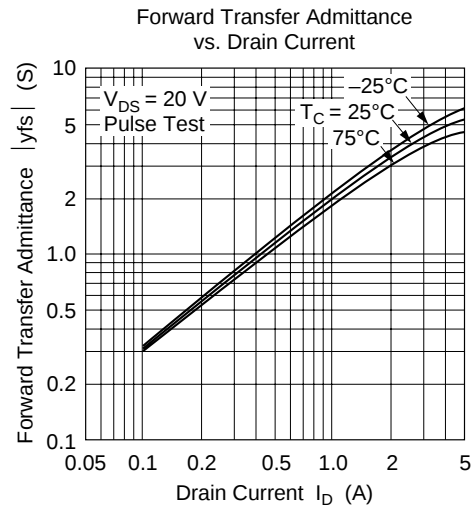
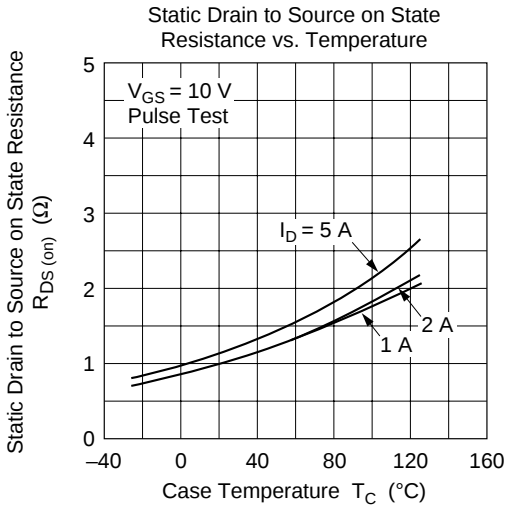
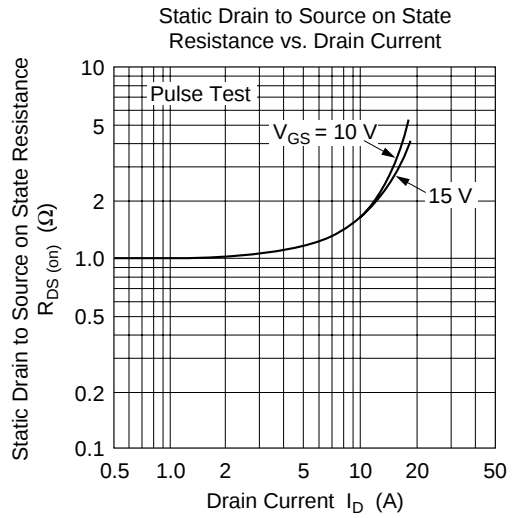
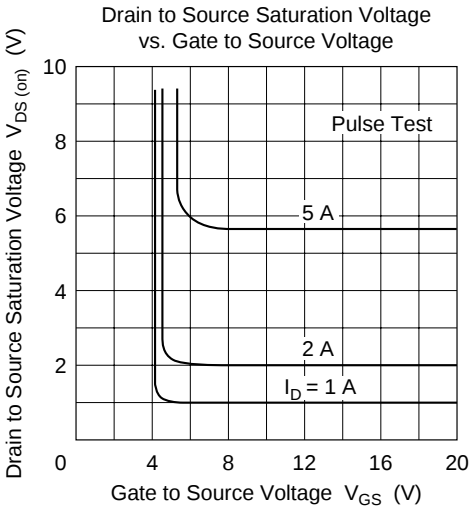


Typical Output Characteristics

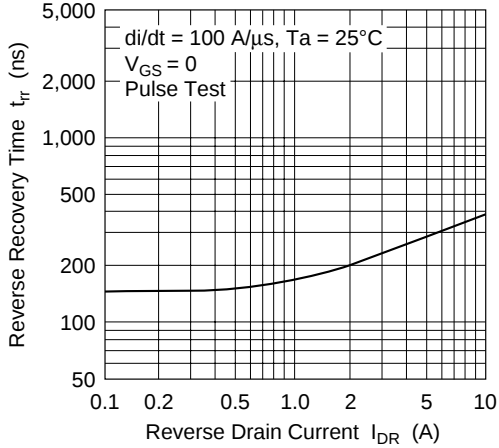


Typical Transfer Characteristics

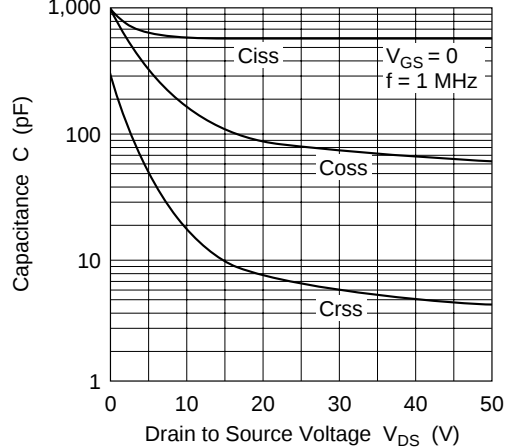




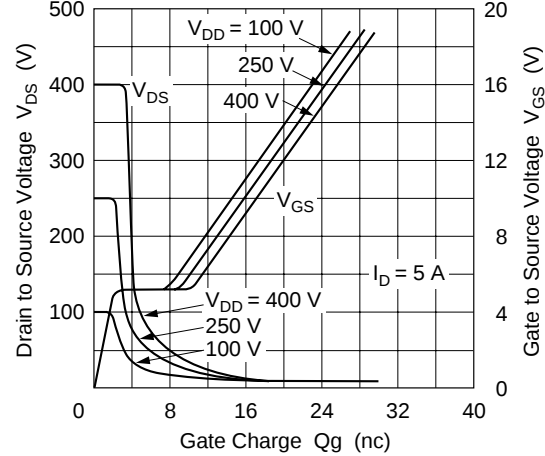
Body to Drain Diode Reverse Recovery Time



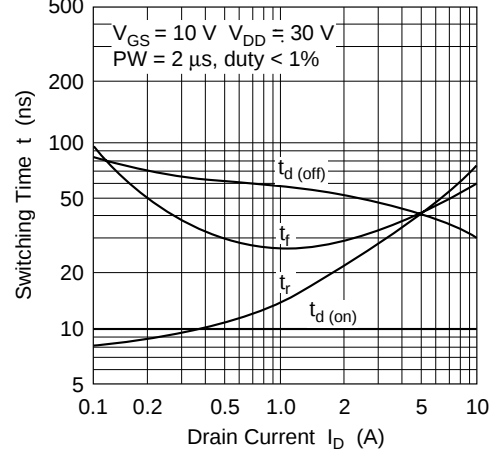
Typical Capacitance vs. Drain to Source Voltage

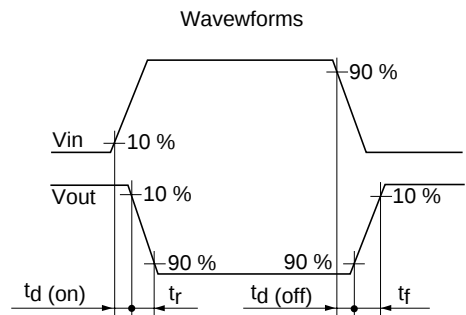
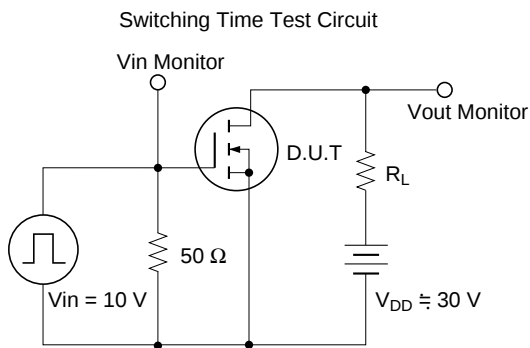
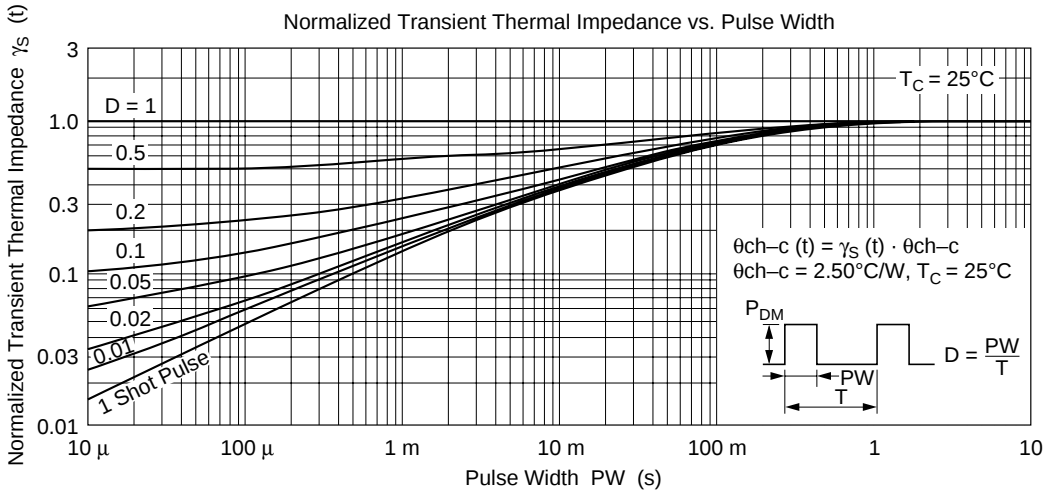
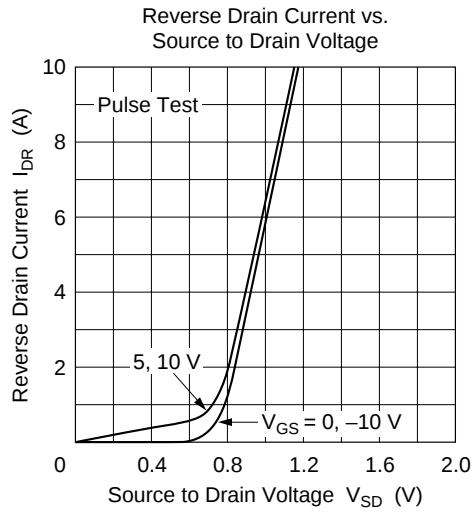


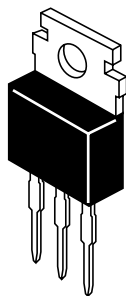
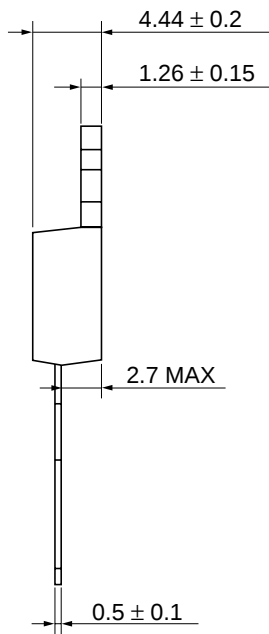
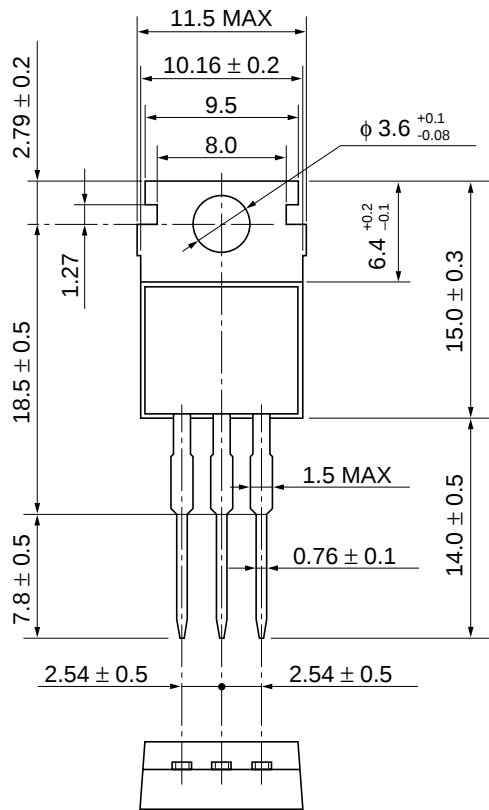
Dynamic Input Characteristics



Switching Characteristics







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

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