



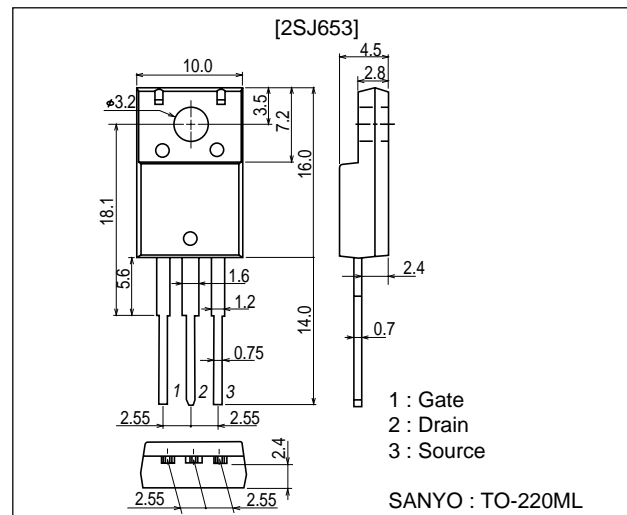
## General-Purpose Switching Device Applications

### Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 4V drive.
- Motor drive, DC / DC converter.

### Package Dimensions

unit : mm  
2063A



### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		-60	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±20	V
Drain Current (DC)	I <sub>D</sub>		-37	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-148	A
Allowable Power Dissipation	P <sub>D</sub>		2.0	W
		T <sub>c</sub> =25°C	35	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	-60			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-60V, V <sub>GS</sub> =0			-1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±16V, V <sub>DS</sub> =0			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-1mA	-1.2		-2.6	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-19A	26.5	38		S

Marking : J653

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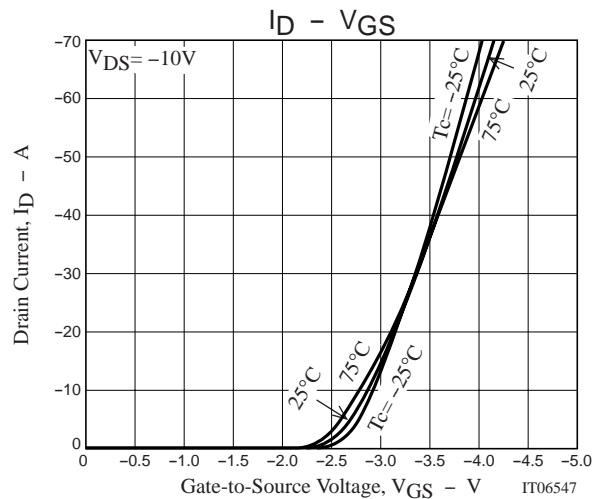
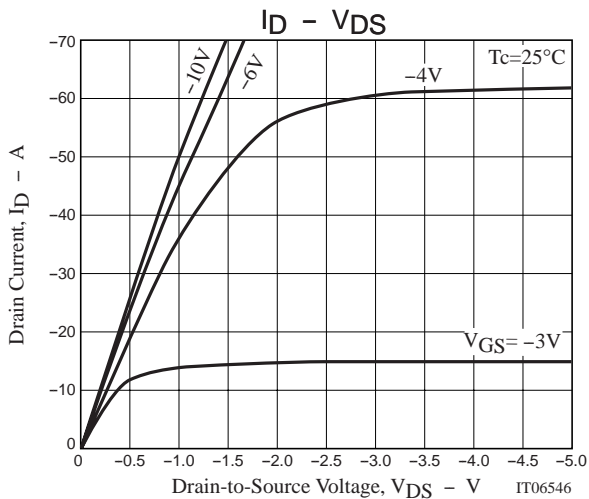
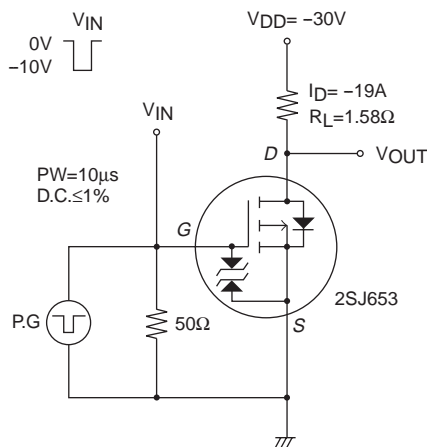
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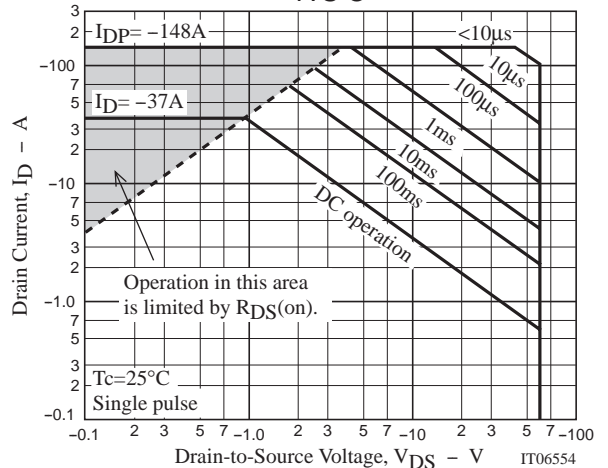
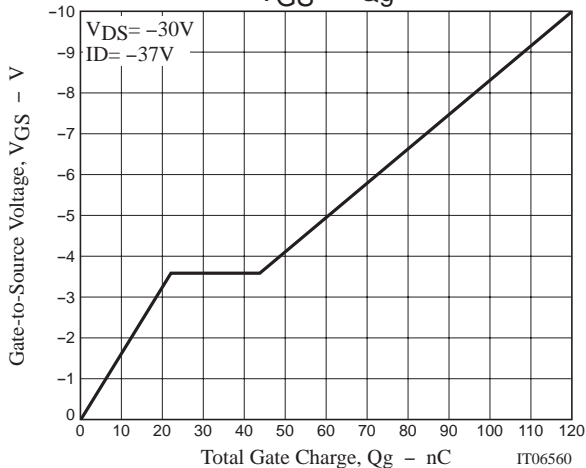
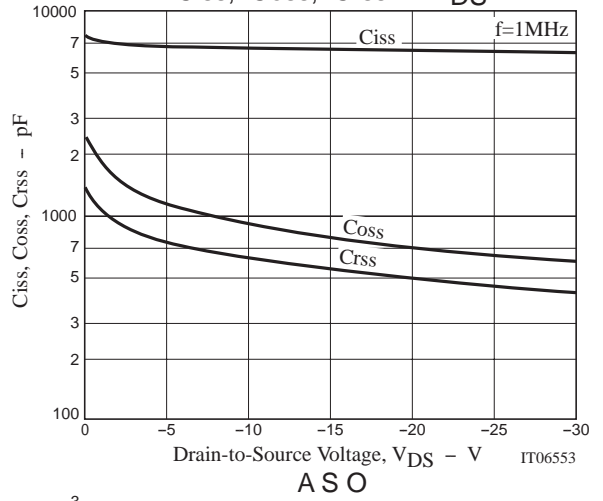
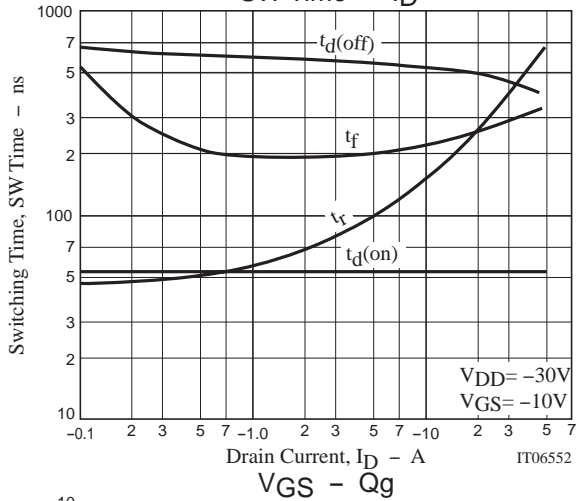
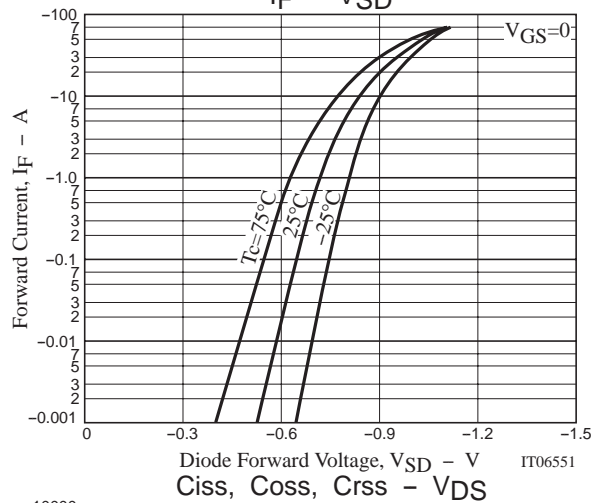
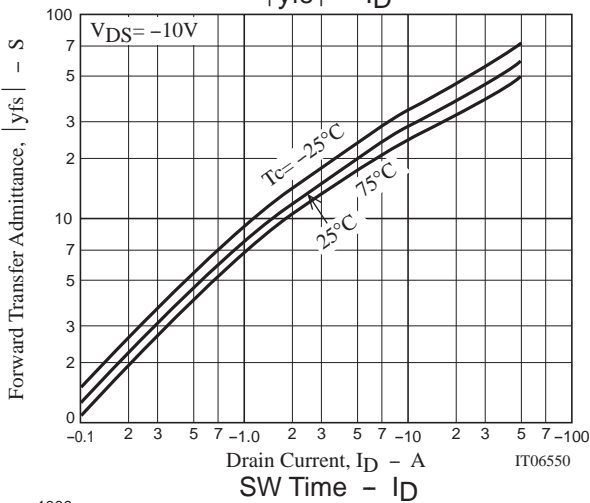
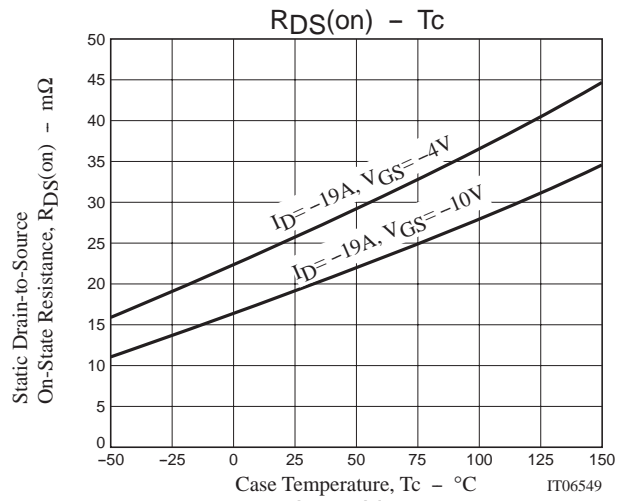
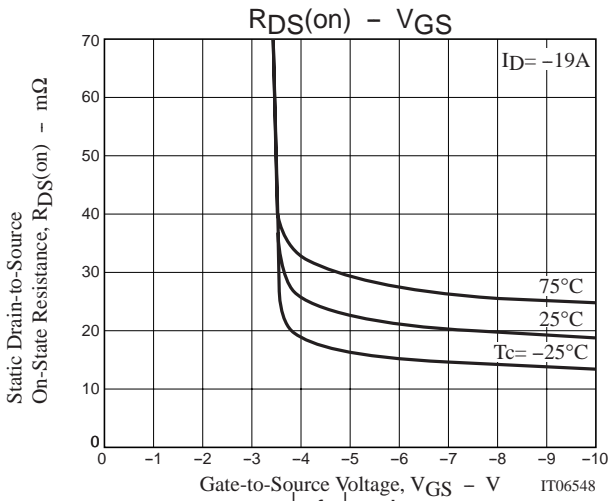
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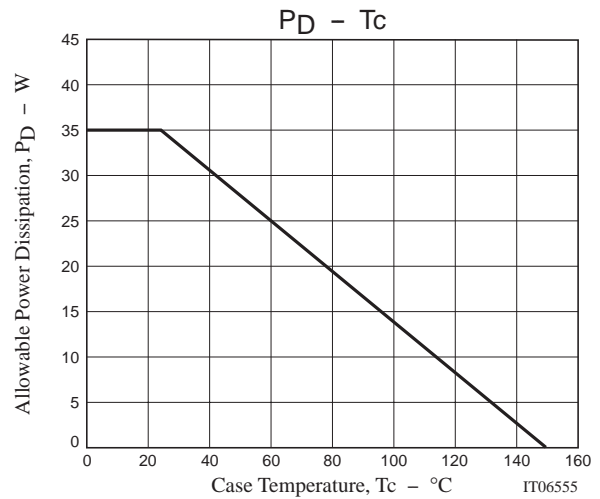
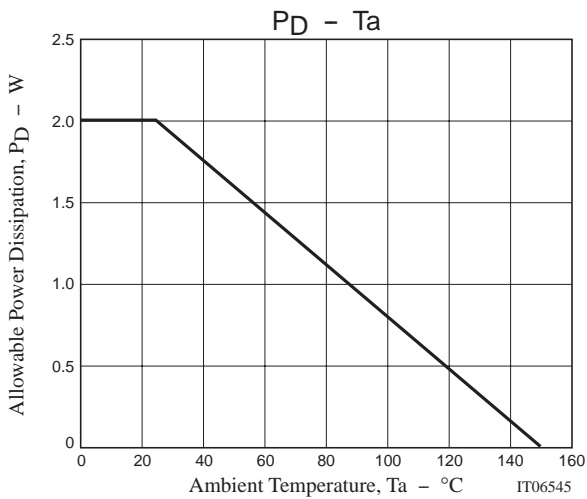
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -19A, V_{GS} = -10V$		19	25	$m\Omega$
	$R_{DS(on)2}$	$I_D = -19A, V_{GS} = -4V$		26	37	$m\Omega$
Input Capacitance	$C_{iss}$	$V_{DS} = -20V, f = 1MHz$		6500		$\mu F$
Output Capacitance	$C_{oss}$	$V_{DS} = -20V, f = 1MHz$		700		$\mu F$
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS} = -20V, f = 1MHz$		500		$\mu F$
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		53		ns
Rise Time	$t_r$	See specified Test Circuit.		245		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		495		ns
Fall Time	$t_f$	See specified Test Circuit.		255		ns
Total Gate Charge	$Q_g$	$V_{DS} = -30V, V_{GS} = -10V, I_D = -37A$		120		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS} = -30V, V_{GS} = -10V, I_D = -37A$		22		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS} = -30V, V_{GS} = -10V, I_D = -37A$		22		nC
Diode Forward Voltage	$V_{SD}$	$I_S = -37A, V_{GS} = 0$		-0.99	-1.2	V

## Switching Time Test Circuit



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