

MOS Field Effect Transistor

2SJ604

■ Features

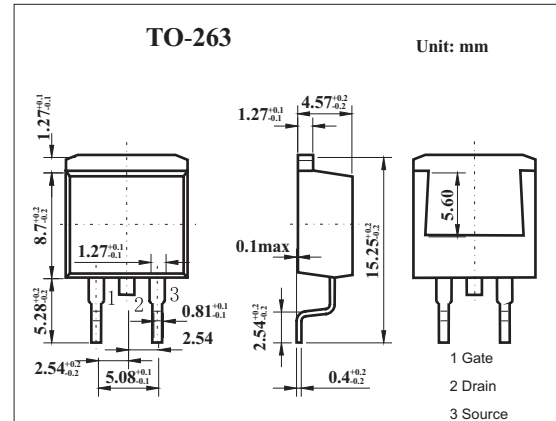
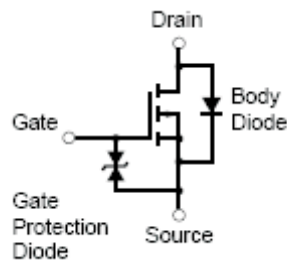
- Low on-resistance

$R_{DS(on)1} = 30 \text{ m}\Omega \text{ MAX. (} V_{GS} = -10 \text{ V, } I_D = -23 \text{ A)}$

$R_{DS(on)2} = 43 \text{ m}\Omega \text{ MAX. (} V_{GS} = -4.0 \text{ V, } I_D = -23 \text{ A)}$

- Low C_{iss} : $C_{iss} = 3300 \text{ pF TYP.}$

- Built-in gate protection diode



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Drain to source voltage	V_{DS}	-60	V
Gate to source voltage	V_{GS}	± 20	V
Drain current (DC)	I_D	± 45	A
Drain current(pulse) *	I_D	± 125	A
Power dissipation $T_c=25^\circ\text{C}$ $T_A=25^\circ\text{C}$	P_D	70	W
	P_D	1.5	W
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

* $PW \leq 10 \mu\text{s}$, duty cycle $\leq 1\%$

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■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain cut-off current	I_{DSS}	$V_{DS} = -60V, V_{GS} = 0$			-10	μA
Gate leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0$			± 10	μA
Gate to source cutoff voltage	$V_{GS(off)}$	$V_{DS} = -10V, I_D = -1mA$	-1.5	-2.0	-2.5	V
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = -10V, I_D = -23A$	20	41		S
Drain to source on-state resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -23A$		23	30	$m\Omega$
		$V_{GS} = -4.0V, I_D = -23A$		30	43	$m\Omega$
Input capacitance	C_{iss}	$V_{DS} = -10V, V_{GS} = 0, f = 1MHz$		3300		pF
Output capacitance	C_{oss}			580		pF
Reverse transfer capacitance	C_{rss}			230		pF
Turn-on delay time	$t_{d(on)}$	$V_{GS(on)} = -30V, I_D = -23A, V_{DD} = -10V, R_G = 0\Omega$		12		ns
Rise time	t_r			11		ns
Turn-off delay time	$t_{d(off)}$			77		ns
Fall time	t_f			52		ns
Total Gate Charge	Q_G	$I_D = -45A$		63		nC
Gate to Source Charge	Q_{GS}	$V_{DD} = -48V$		11		nC
Gate to Drain Charge	Q_{GD}	$V_{GS} = -10V$		16		nC
Body Diode Forward Voltage	$V_{F(S-D)}$	$I_F = 45A, V_{GS} = 0V$		1.0		V
Reverse Recovery Time	t_{rr}	$I_F = 45A, V_{GS} = 0V$		51		ns
Reverse Recovery Charge	Q_{rr}	$di/dt = 100A/\mu s$		105		nC