

Field Effect Transistor

Silicon N Channel MOS Type (t-MOS III.5)

High Speed, High Current Switching Applications

Features

- Low Drain-Source ON Resistance
 - $R_{DS(ON)} = 1.9\Omega$ (Typ.)
- High Forward Transfer Admittance
 - $|Y_{fs}| = 3.0S$ (Typ.)
- Low Leakage Current
 - $I_{DSS} = 100\mu A$ (Max.) @ $V_{DS} = 600V$
- Enhancement-Mode
 - $V_{th} = 2.1 \sim 4.0V$ @ $V_{DS} = 10V$, $I_b = -1mA$

Absolute Maximum Ratings (Ta = 25°C)

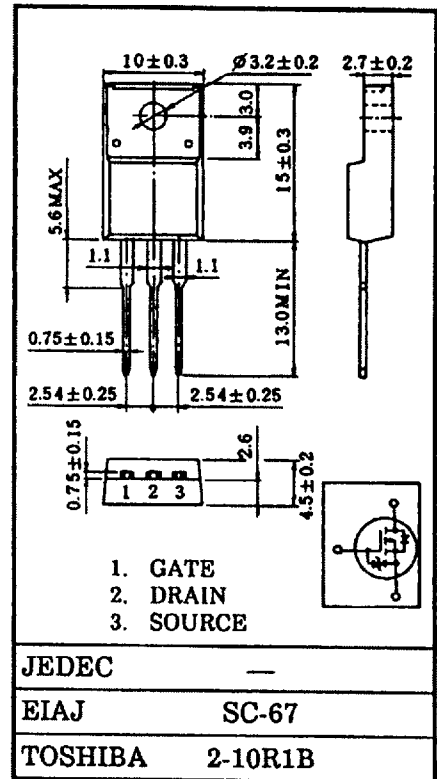
CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DSS}	600	V
Drain-Gate Voltage ($R_{GS} = 20k\Omega$)	V_{DGR}	600	V
Gate-Source Voltage	V_{GSS}	± 30	V
Drain Current	DC	I_b	3.5
	Pulse	I_{bP}	14
Drain Power Dissipation (Tc = 25°C)	P_D	40	W
Channel Temperature	T_{ch}	150	°C
Storage Temperature	T_{stg}	-55 ~ 150	°C

Thermal Characteristics

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Case	$R_{(ch-c)}$	3.125	°C/W
Thermal Resistance, Channel to Ambient	$R_{(ch-a)}$	62.5	°C/W

This transistor is an electrostatic sensitive device. Please handle with caution.

Industrial Applications Unit in mm



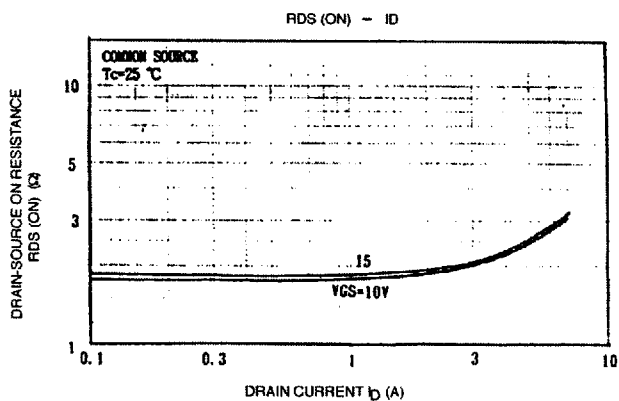
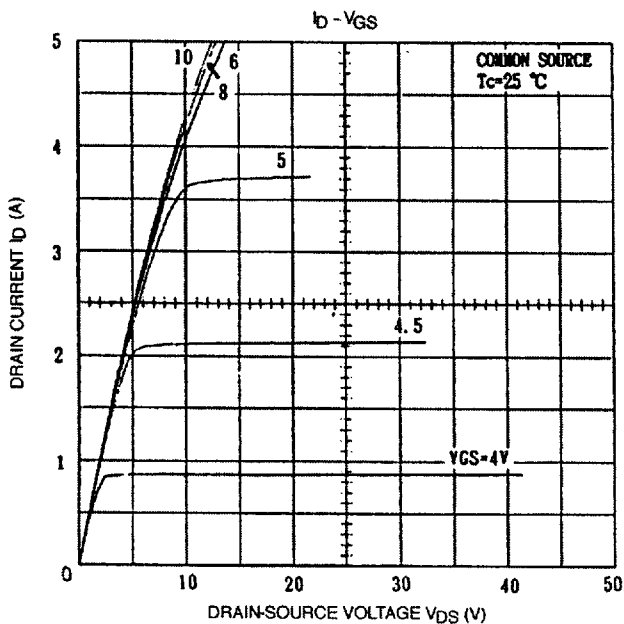
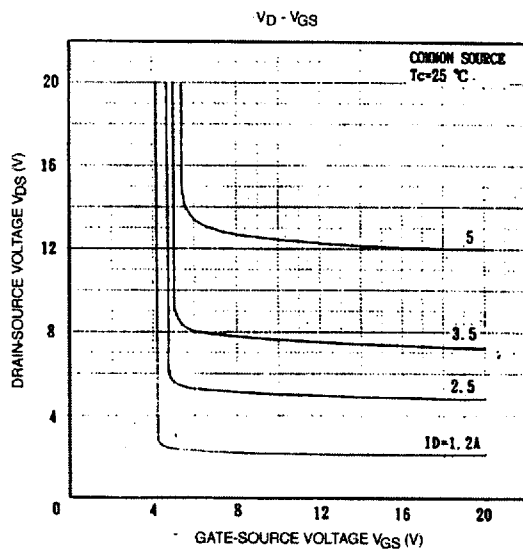
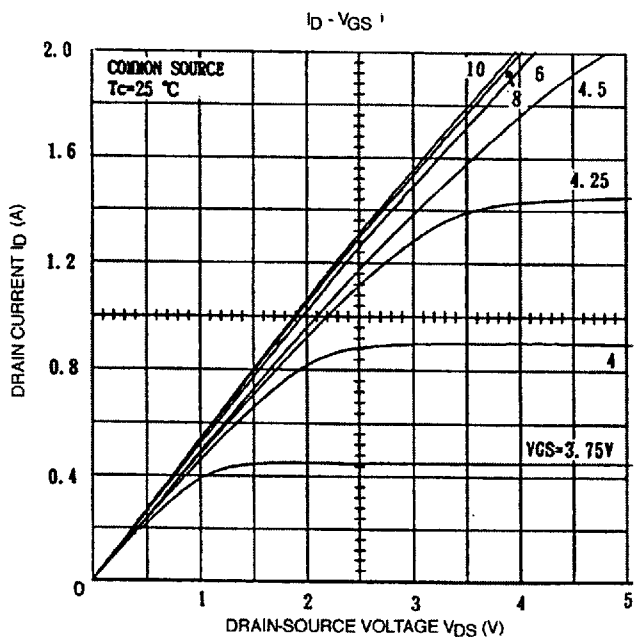
Weight : 1.9g

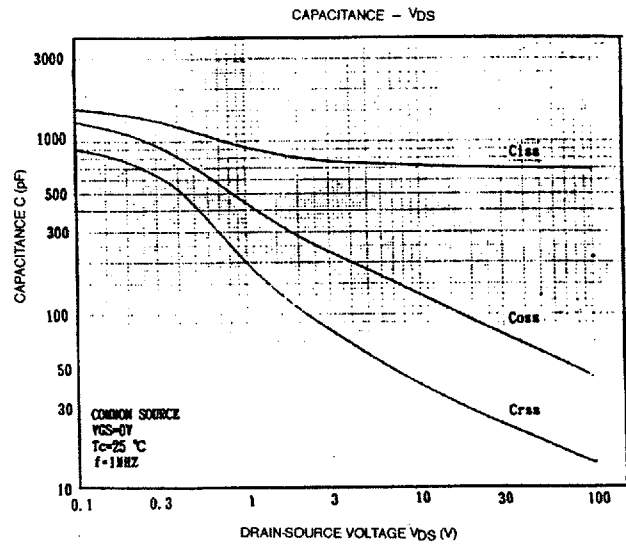
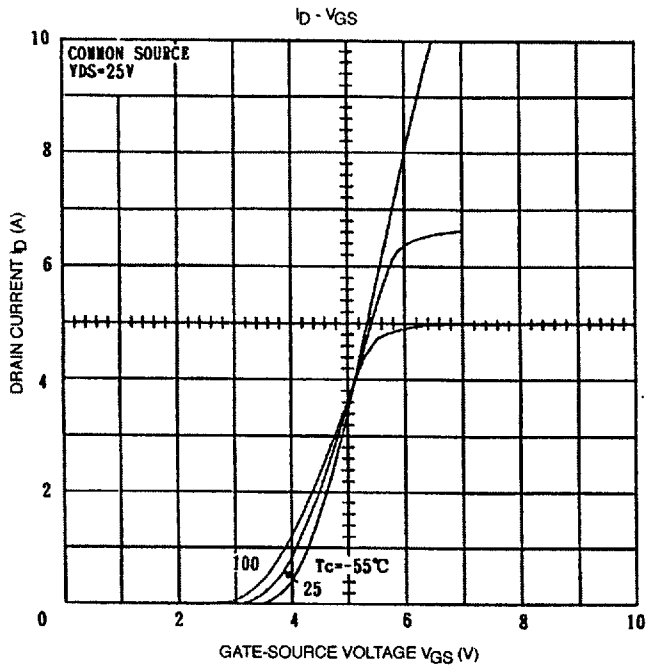
Electrical Characteristics (Ta = 25°C)

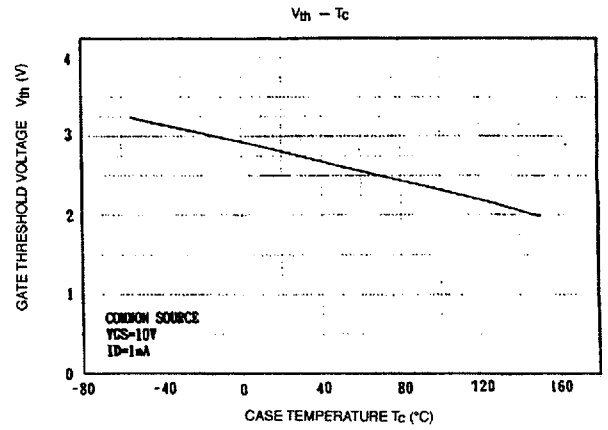
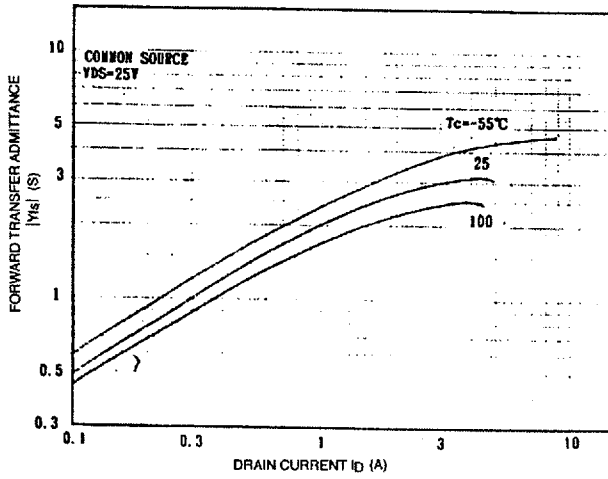
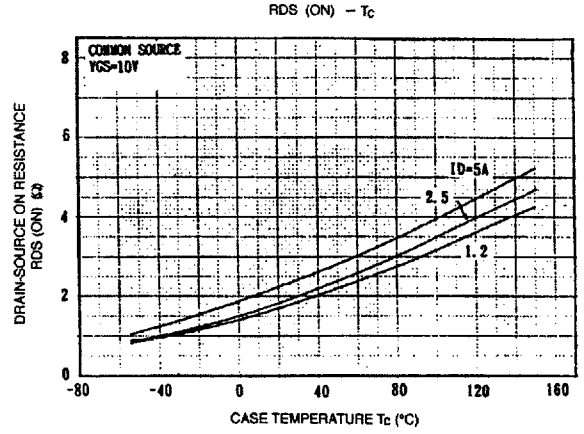
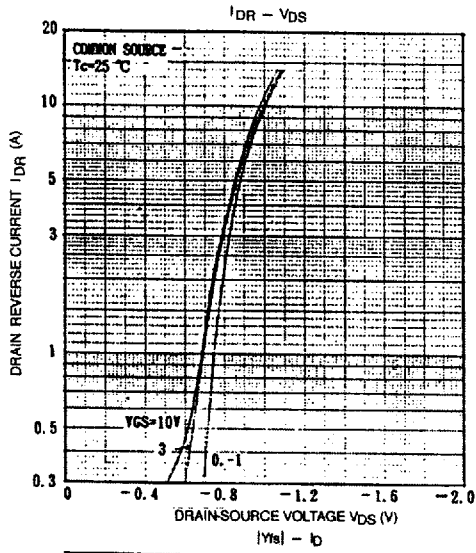
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	$V_{GS} = \pm 30V, V_{DS} = 0V$	-	-	± 100	nA
Drain Cut-off Current		I_{DSS}	$V_{DS} = 600V, V_{GS} = 0V$	-	-	100	μA
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	$I_D = 250\mu A, V_{GS} = 0V$	600	-	-	V
Gate Threshold Voltage		V_{th}	$V_{DS} = -10V, I_D = -1mA$	2.1	-	4.0	V
Drain-Source ON Resistance		$r_{DS(ON)}$	$I_D = 2.5A, V_{GS} = 10V$	-	1.9	2.5	Ω
Forward Transfer Admittance		$ Y_{fs} $	$V_{DS} = 25V, I_{DS} = 2.5A$	1.5	3.0	-	S
Input Capacitance		C_{iss}	$V_{DS} = 25V, V_{GS} = 0V,$ $f = 1MHz$	-	600	1000	μF
Reverse Transfer Capacitance		C_{rss}		-	30	50	
Output Capacitance		C_{oss}		-	100	150	
Switching Time	Rise Time	t_r	<p>$I_D = 2.5A$ $V_{GS} = 10V$ 50Ω $R_L = 80\Omega$ $V_{DD} = 200V$ $V_{IN} : t_r + t_f < 5ns$</p>	-	20	40	ns
	Turn-on Time	t_{on}		-	60	120	
	Fall Time	t_f		-	30	60	
	Turn-off Time	t_{off}		-	120	240	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q_g	$V_{DD} = 400V, V_{GS} = -10V,$ $I_D = -3.5A$	-	35	70	nC
Gate-Source Charge		Q_{gs}		-	20	-	
Gate-Drain ("Miller") Charge		Q_{gd}		-	15	-	

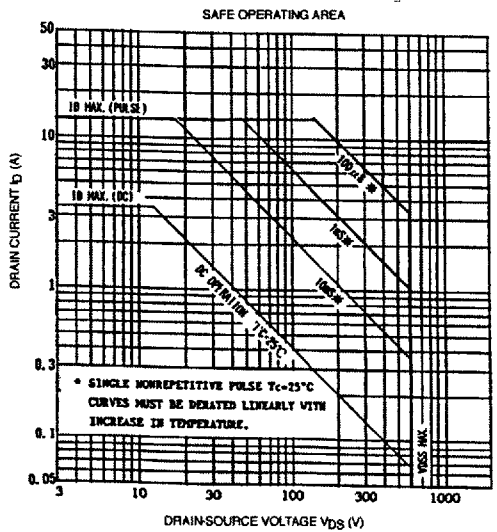
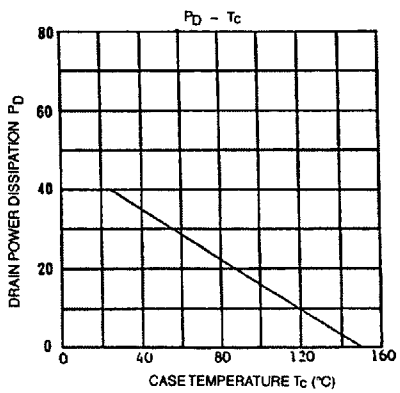
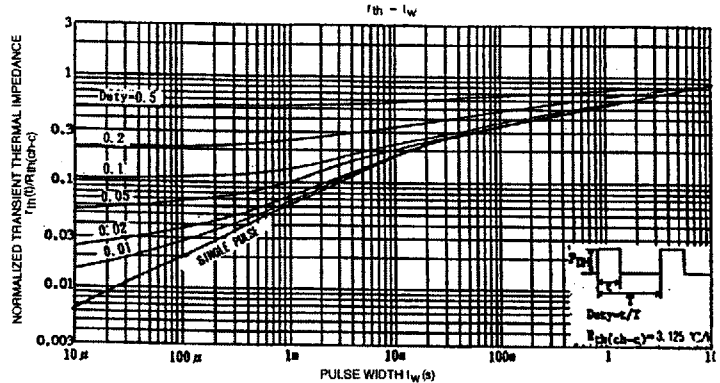
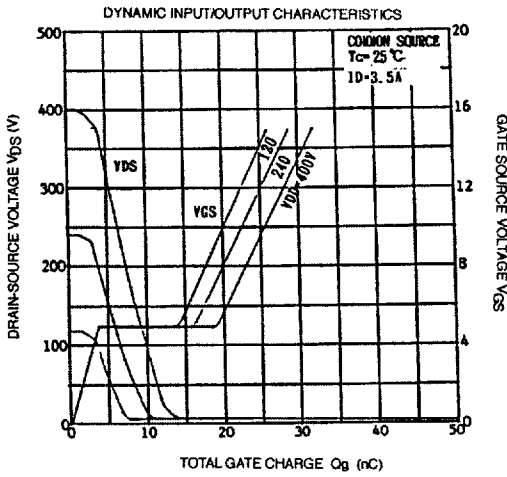
Source-Drain Diode Ratings and Characteristics (Ta = 25°C)

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I_{DR}	-	-	-	3.5	A
Pulse Drain Reverse Current	I_{DRP}	-	-	-	14	A
Diode Forward Voltage	V_{SF}	$I_{DR} = 3.5A, V_{GS} = 0V$	-	-	-1.8	V
Reverse Recovery Time	t_r	$I_{DR} = 3.5A, V_{GS} = 0V$	-	250	-	ns
Reverse Recovered Charge	Q_r	$dI_{DR}/dt = 100A/\mu s$	-	2.0	-	μC









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