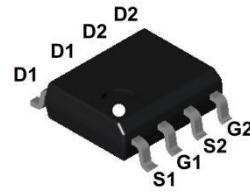
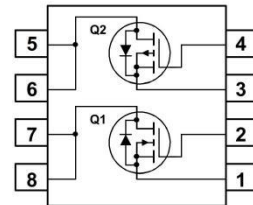


Features

- Low on resistance
- 4.5V/-4.5V drive
- RoHS compliant


Applications

- • DC/DC converter
- • Power management
- • LCD backlight inverter


Absolute Maximum Ratings Tc = 25° C

Parameter	Symbol	Conditions	Ratings		Unit
			N-Ch	P-Ch	
Drain-to-Source Voltage	V_{DSS}		60	-45	V
Gate-to-Source Voltage	V_{GSS}		± 25	± 25	
Drain Current (DC)	I_D		5	-3.5	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu S$, duty cycle ≤ 1	20	-14	
Allowable Power Dissipation	P_D	Mounted on a ceramic board (1000mm ² × 0.8mm) 1unit	1.3		W
Total Dissipation	P_T	Mounted on a ceramic board (1000mm ² × 0.8mm)	1.7		
Channel Temperature	T_{ch}	Maximum Junction Temperature	150		°C
Storage Temperature	T_{stg}	Storage Temperature Range	-55~+150		

Electrical Characteristics Tc= 25° C

Parameter	Symbol	Conditions		Ratings			Unit
				Min	Typ	Max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 250\mu A$, $V_{GS} = 0V$	N-Ch	60	-	-	V
		$I_D = -250\mu A$, $V_{GS} = 0V$	P-Ch	-45	-	-	
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 48V$, $V_{GS} = 0V$	N-Ch	-	-	1	μA
		$V_{DS} = -36V$, $V_{GS} = 0V$	P-Ch	-	-	-1	
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = +25V$, $V_{DS} = 0V$	N-Ch	-	-	± 100	nA
		$V_{GS} = +25V$, $V_{DS} = 0V$	P-Ch	-	-	± 100	

Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\mu A$	N-Ch	1	2	2.5	V
		$V_{DS} = V_{GS}$, $I_D = -250\mu A$	P-Ch	-1	-2	-2.5	
Static Drain-to-Source On-State Resistance	$R_{DS(on)}$	$I_D = 5A$, $V_{GS} = 10V$	N-Ch	-	-	100	m Ω
		$I_D = -3.5A$, $V_{GS} = -10$	P-Ch	-	80	100	

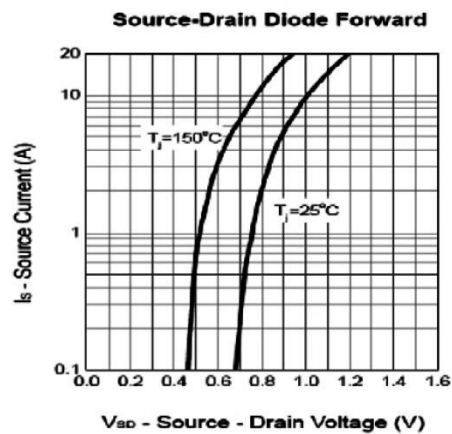
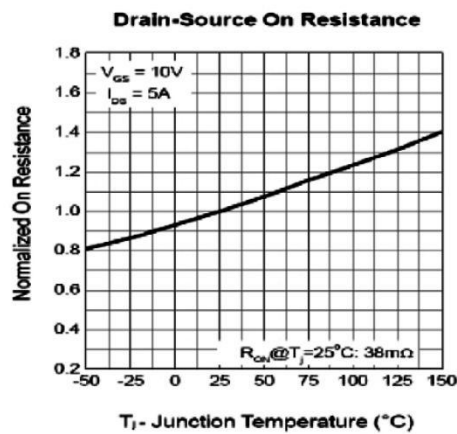
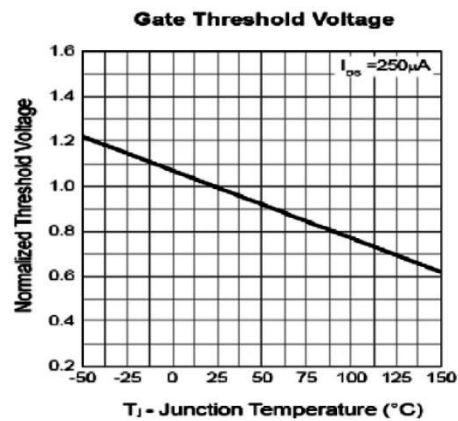
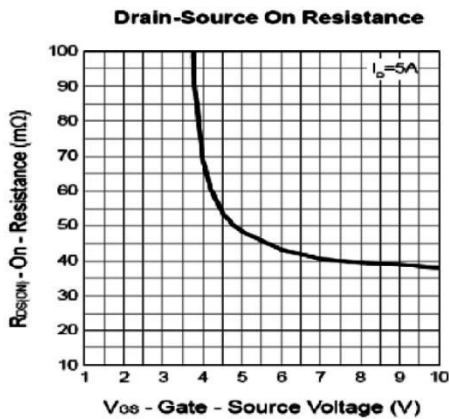
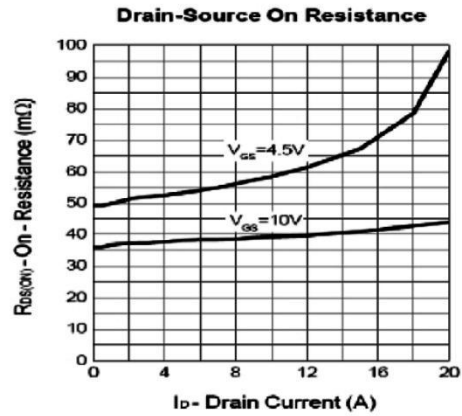
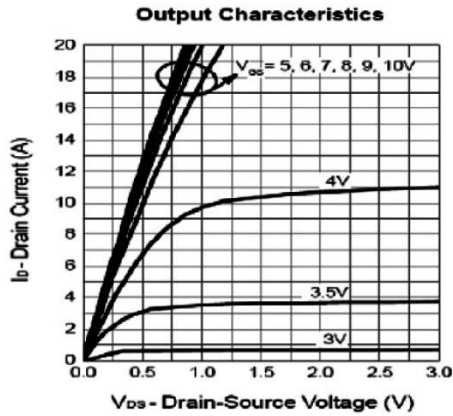
Electrical Characteristics Tc= 25° C (Continued)

Parameter	Symbol	Conditions		Ratings			Unit
				Min	Typ	Max	
Static Drain-to-Source On-State Resistance	$R_{DS(on)}$	$I_D = 4A$, $V_{GS} = 4.5V$	N-Ch	-	55	75	m Ω
		$I_D = -3.1A$, $V_{GS} = -4.5$	P-Ch	-	100	135	
Input Capacitance	C_{ISS}	$V_{DS} = 30V$, $V_{GS} = 0V$, $f = 1MHz$	N-Ch	-	915	-	
		$V_{DS} = -22.5V$, $V_{GS} = 0V$, $f = 1MHz$	P-Ch	-	1050	-	
Output Capacitance	C_{OSS}	$V_{DS} = 30V$, $V_{GS} = 0V$, $f = 1MHz$	N-Ch	-	70	-	pF
		$V_{DS} = -22.5V$, $V_{GS} = 0V$, $f = 1MHz$	P-Ch	-	70	-	
Reverse Transfer Capacitance	C_{RSS}	$V_{DS} = 30V$, $V_{GS} = 0V$, $f = 1MHz$	N-Ch	-	45	-	
		$V_{DS} = -22.5V$, $V_{GS} = 0V$, $f = 1MHz$	P-Ch	-	50	-	
Turn-on Delay Time	$t_{d(on)}$	N-Channel $V_{GEN} = 10V$, $V_{DS} = 30V$, $R_L = 30\Omega$, $I_D = 1A$, $R_{GEN} = 6\Omega$ P-Channel $V_{GEN} = -10V$, $V_{DS} = -22.5V$, $R_L = 30\Omega$, $I_D = -1A$, $R_{GEN} = 6\Omega$	N-Ch	-	9	17	nS
			P-Ch	-	7	14	
Rise Time	t_r		N-Ch	-	6	12	
			P-Ch	-	8	15	
Turn-off Delay Time	$t_{d(off)}$		N-Ch	-	25	46	
			P-Ch	-	47	86	
Fall Time	t_f		N-Ch	-	5	10	
			P-Ch	-	17	32	
Total Gate Charge	Q_g	N-Channel	N-Ch	-	19	27	nC
		P-Channel	P-Ch	-	22	31	
Gate-to-Source Charge	Q_{gs}	N-Channel	N-Ch	-	4.4	-	
		P-Channel	P-Ch	-	2.8	-	

Gate-to-Drain "Miller" Charge	Q_{gd}		N-Ch	-	4.4	-	
			P-Ch	-	5	-	
Diode Forward Voltage	V_{SD}	$I_S = 2.5A, V_{GS} = 0$	N-Ch	-	0.8	1.1	V
		$I_S = -2.5A, V_{GS} = 0$	P-Ch	-	-0.8	-1.1	

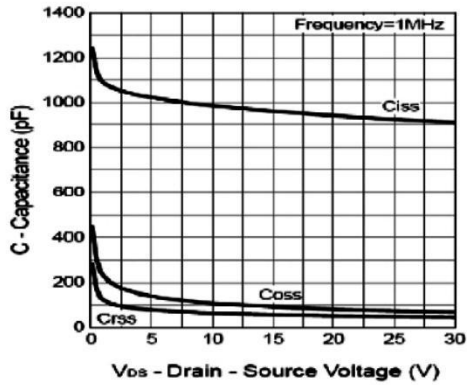
Typical Characteristics $T_c=25^\circ C$

N-Channel

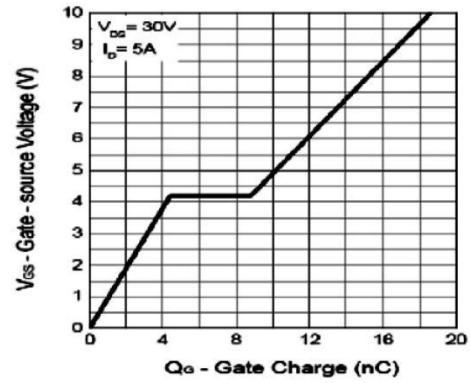


N-Channel

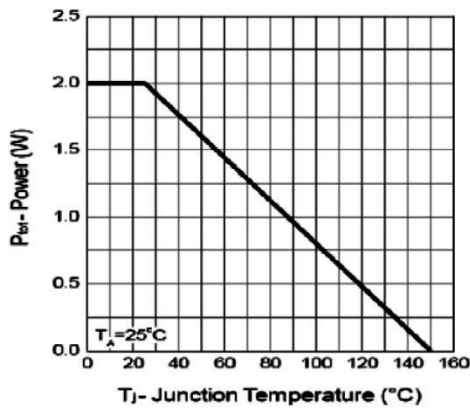
Capacitance



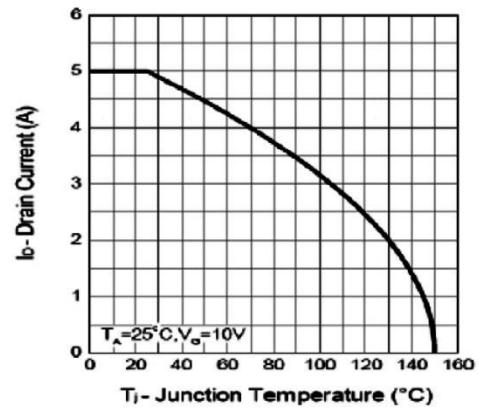
Gate Charge



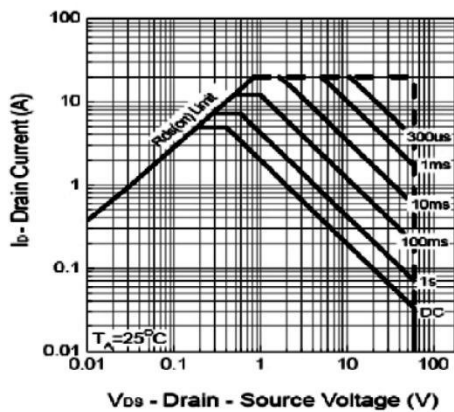
Power Dissipation



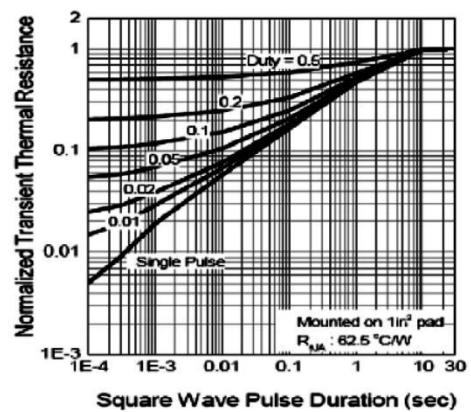
Drain Current



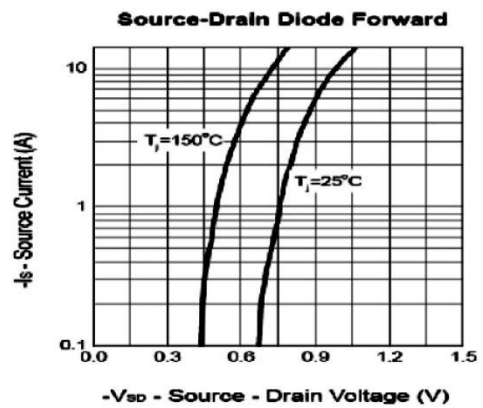
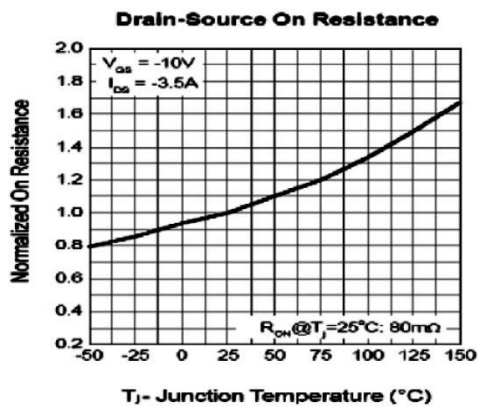
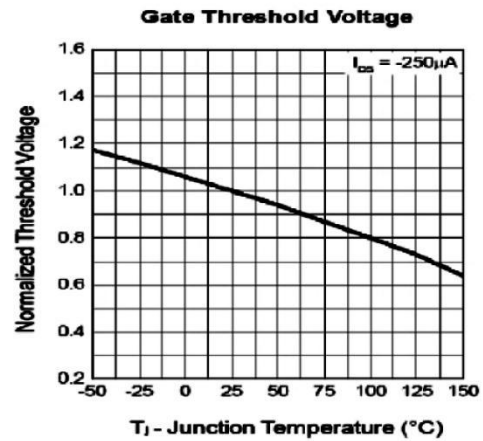
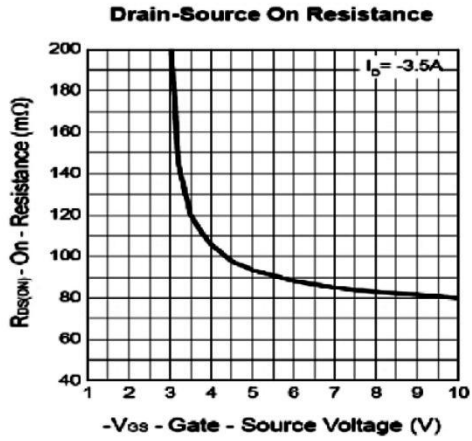
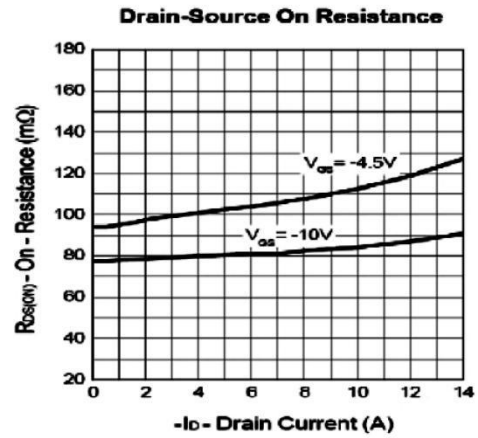
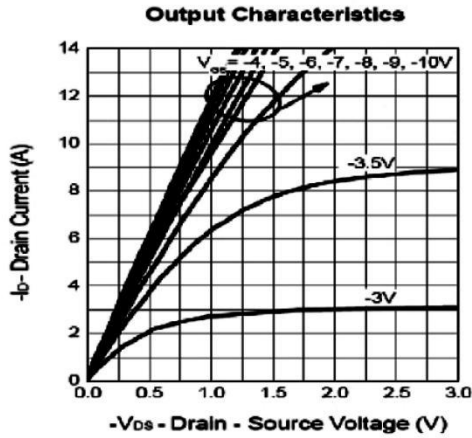
Safe Operation Area



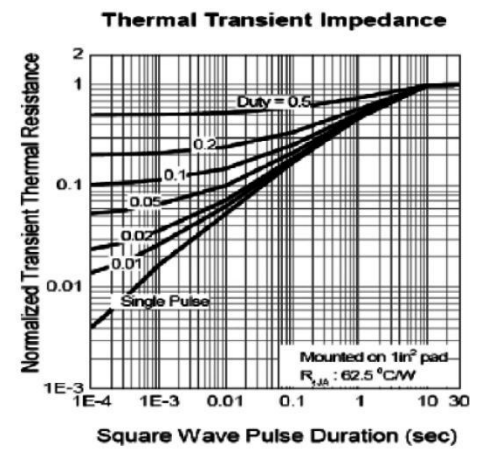
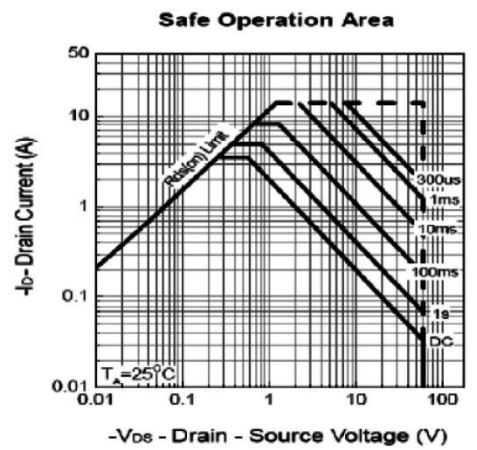
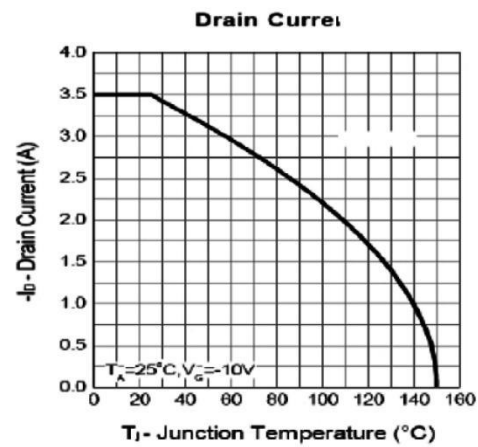
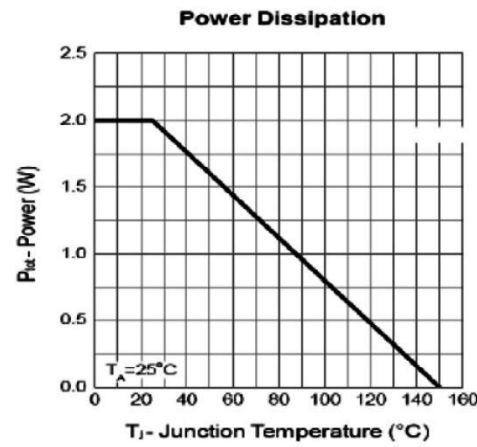
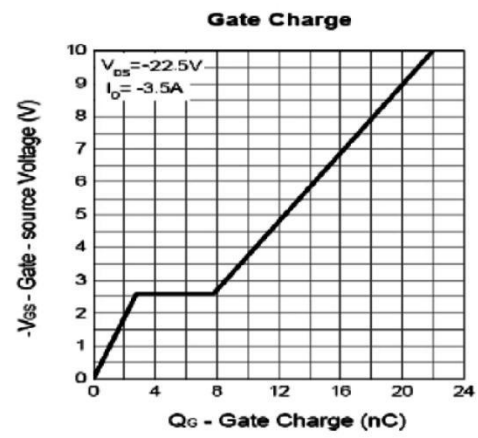
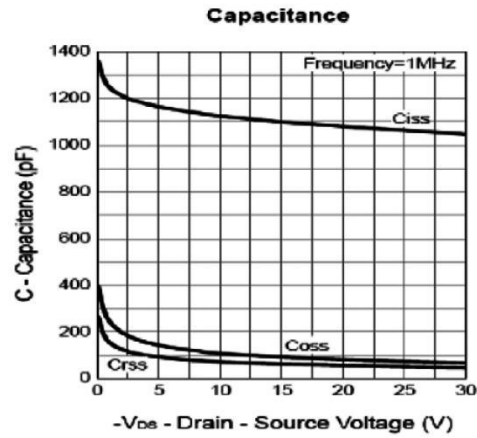
Thermal Transient Impedance



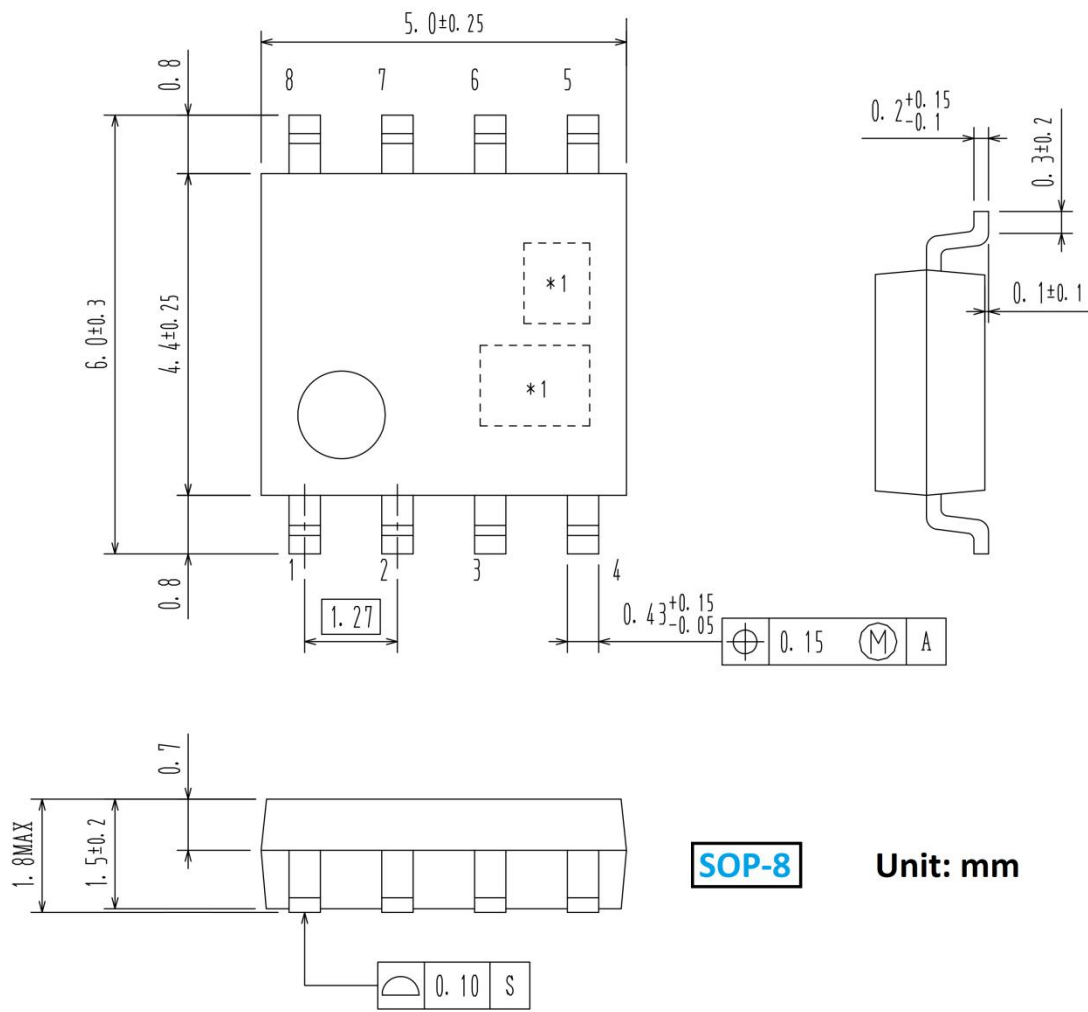
P-Channel



P-Channel



Pack Dimensions



SOP-8

Unit: mm