



# FW344A

## Power MOSFET

30V, 4.5A, 64mΩ, -30V, -3.5A, 102mΩ, Complementary Dual SOIC8

ON Semiconductor®

<http://onsemi.com>

### Features

- ON-resistance Nch :  $R_{DS(on)1}=49m\Omega(\text{typ.})$   
Pch :  $R_{DS(on)1}=78m\Omega(\text{typ.})$
- 4V drive
- Halogen free compliance
- Nch+Pch MOSFET

### Specifications

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

Parameter	Symbol	Conditions	N-channel	P-channel	Unit
Drain-to-Source Voltage	$V_{DSS}$		30	-30	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 20$	$\pm 20$	V
Drain Current (DC)	$I_D$		4.5	-3.5	A
Drain Current ( $PW \leq 10\mu\text{s}$ )	$I_{DP}$	Duty cycle $\leq 1\%$	5	-4	A
Drain Current ( $PW \leq 10\mu\text{s}$ )	$I_{DP}$	Duty cycle $\leq 1\%$	18	-14	A
Allowable Power Dissipation	$P_D$	When mounted on ceramic substrate (2000mm <sup>2</sup> x0.8mm) 1unit	1.4		W
Total Dissipation	$P_T$	When mounted on ceramic substrate (2000mm <sup>2</sup> x0.8mm)	1.7		W
Channel Temperature	$T_{ch}$		150		$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150		$^\circ\text{C}$

This product is designed to "ESD immunity < 200V\*\*", so please take care when handling.

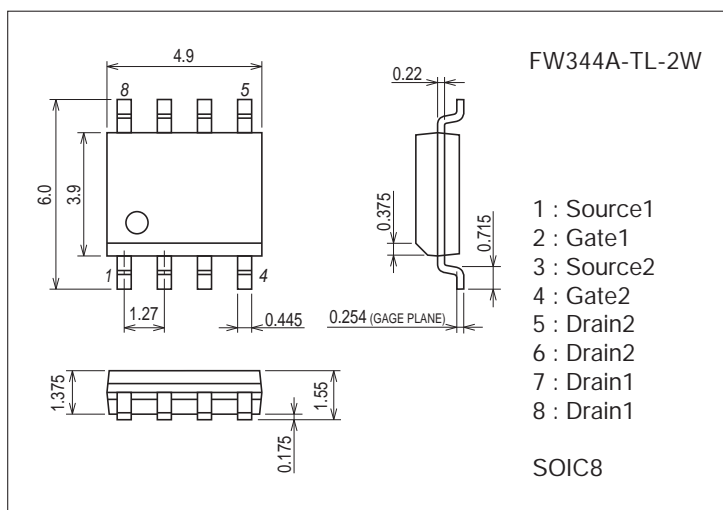
\* Machine Model

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

### Package Dimensions

unit : mm (typ)

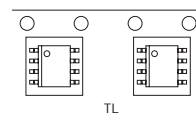
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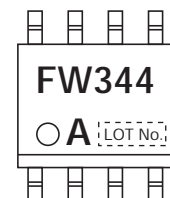
### Product & Package Information

- Package : SOIC8
- JEITA, JEDEC : SC-87, SOT-96
- Minimum Packing Quantity : 2,500 pcs./reel

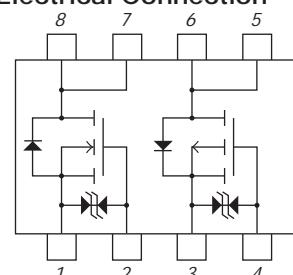
### Packing Type : TL



### Marking



### Electrical Connection



# FW344A

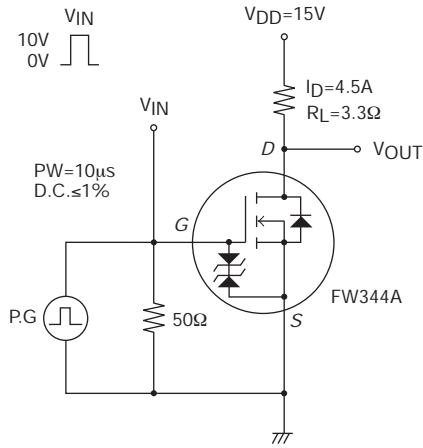
## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[N-channel]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	30			V
Zero-Gate Voltage Drain Current	IDSS	VDS=30V, VGS=0V			1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±16V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	1.2		2.6	V
Forward Transfer Admittance	yfs	VDS=10V, ID=4.5A		2.6		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=4.5A, VGS=10V		49	64	mΩ
	RDS(on)2	ID=2A, VGS=4.5V		80	112	mΩ
	RDS(on)3	ID=2A, VGS=4V		100	140	mΩ
Input Capacitance	Ciss	VDS=10V, f=1MHz		280		pF
Output Capacitance	Coss			60		pF
Reverse Transfer Capacitance	Crss			30		pF
Turn-ON Delay Time	t <sub>d(on)</sub>		See specified Test Circuit.		6	
Rise Time	t <sub>r</sub>			21		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>			20		ns
Fall Time	t <sub>f</sub>			10		ns
Total Gate Charge	Qg	VDS=10V, VGS=10V, ID=4.5A			5.6	
Gate-to-Source Charge	Qgs			1.2		nC
Gate-to-Drain "Miller" Charge	Qgd			0.8		nC
Diode Forward Voltage	VSD		IS=4.5A, VGS=0V		0.85	1.2
[P-channel]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=-1mA, VGS=0V	-30			V
Zero-Gate Voltage Drain Current	IDSS	VDS=-30V, VGS=0V			-1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±16V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=-10V, ID=-1mA	-1.2		-2.3	V
Forward Transfer Admittance	yfs	VDS=-10V, ID=-3.5A		3.9		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=-3.5A, VGS=-10V		78	102	mΩ
	RDS(on)2	ID=-2A, VGS=-4.5V		125	175	mΩ
	RDS(on)3	ID=-2A, VGS=-4V		145	205	mΩ
Input Capacitance	Ciss	VDS=-10V, f=1MHz		250		pF
Output Capacitance	Coss			65		pF
Reverse Transfer Capacitance	Crss			46		pF
Turn-ON Delay Time	t <sub>d(on)</sub>		See specified Test Circuit.		5.4	
Rise Time	t <sub>r</sub>			34		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>			28		ns
Fall Time	t <sub>f</sub>			24		ns
Total Gate Charge	Qg	VDS=-10V, VGS=-10V, ID=-3.5A			5	
Gate-to-Source Charge	Qgs			1		nC
Gate-to-Drain "Miller" Charge	Qgd			1.2		nC
Diode Forward Voltage	VSD		IS=-3.5A, VGS=0V		-0.88	-1.5

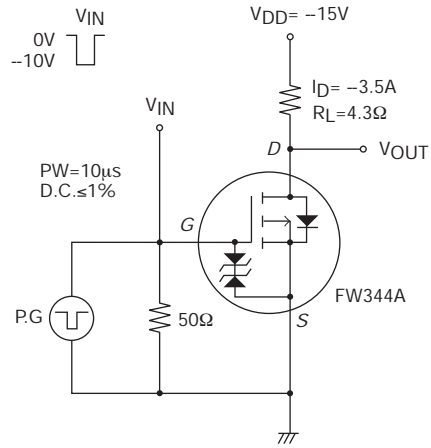
# FW344A

## Switching Time Test Circuit

[N-channel]

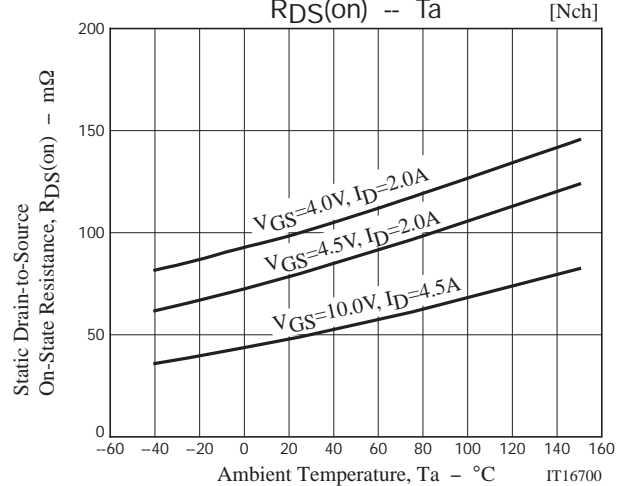
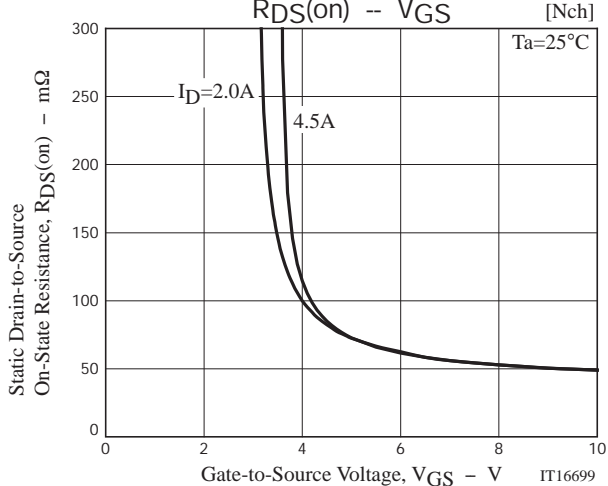
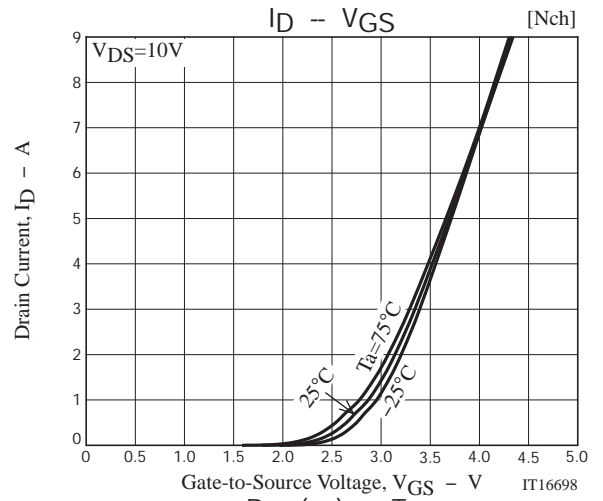
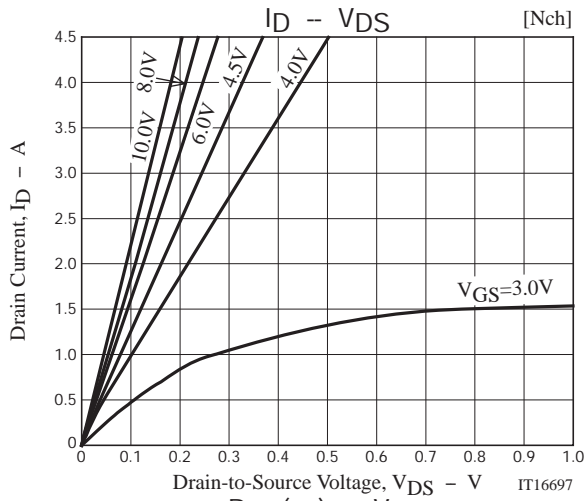


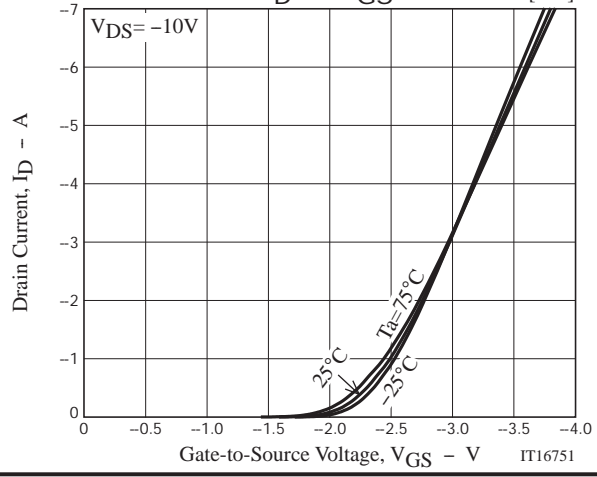
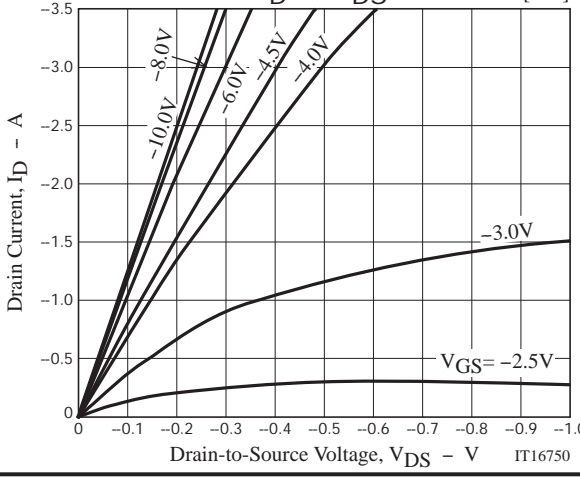
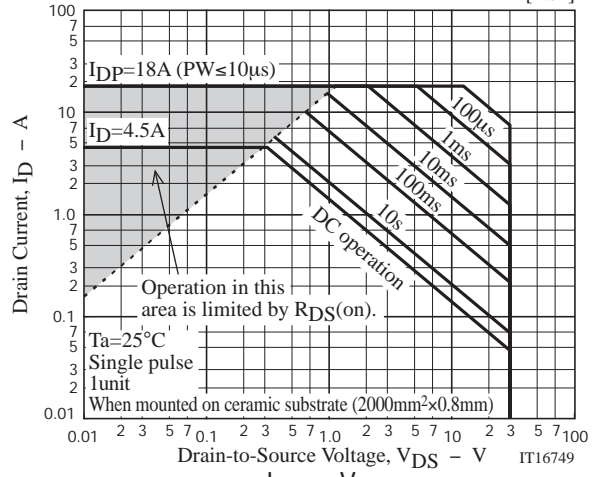
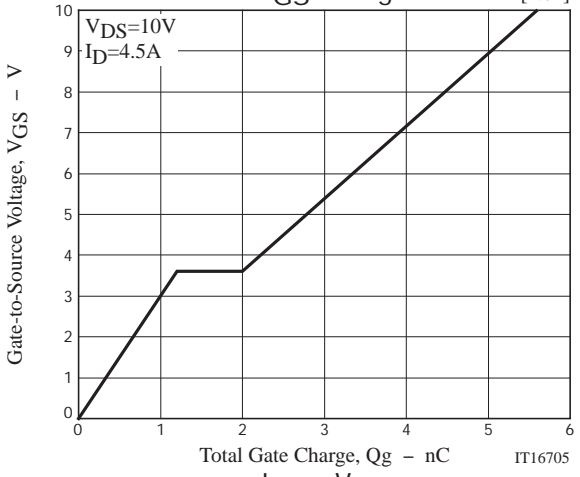
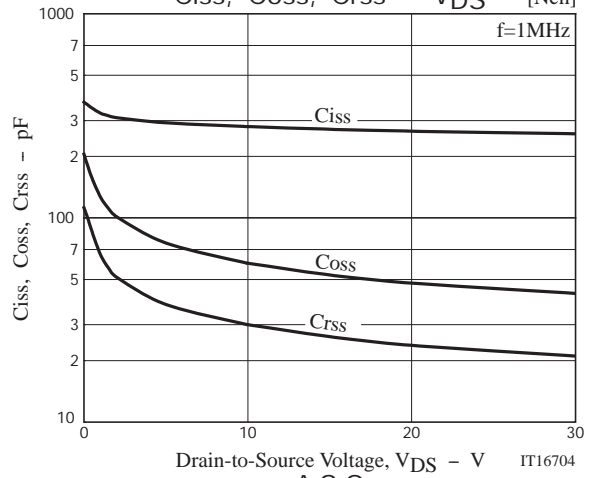
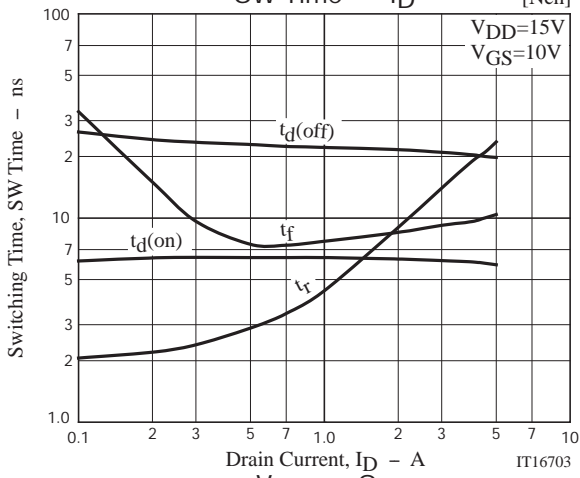
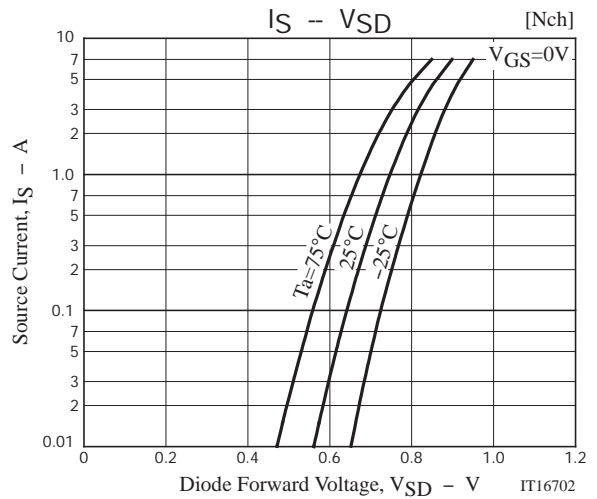
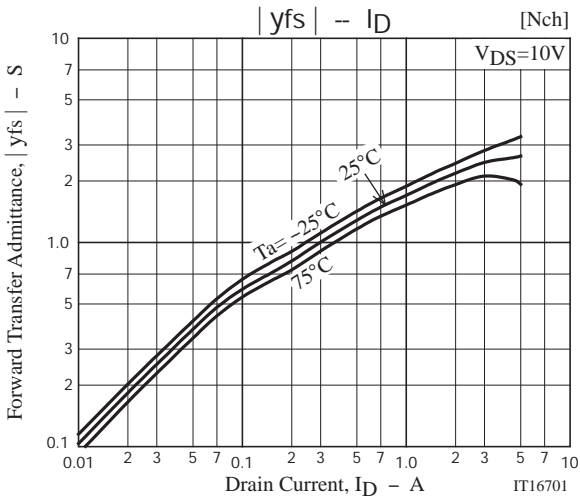
[P-channel]

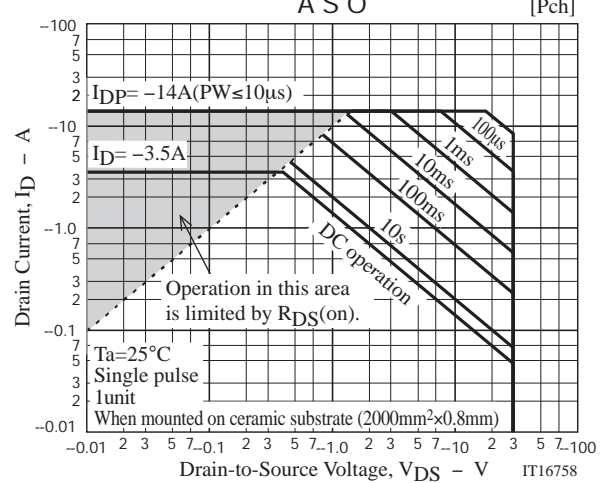
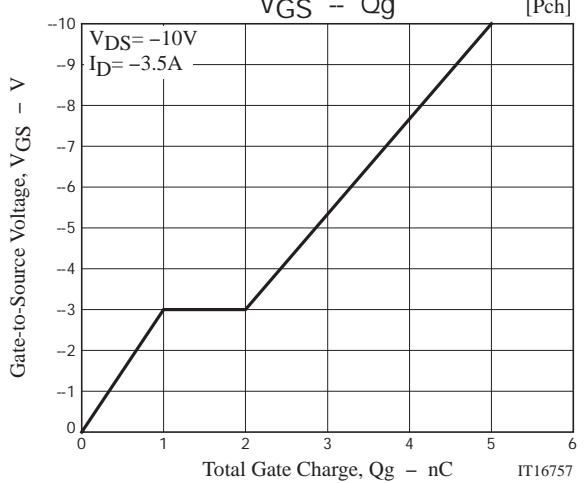
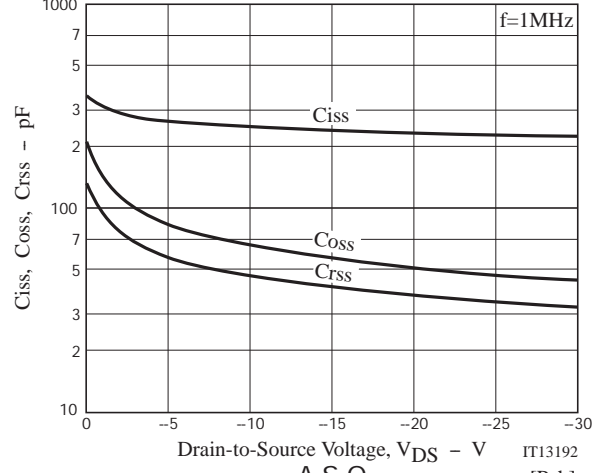
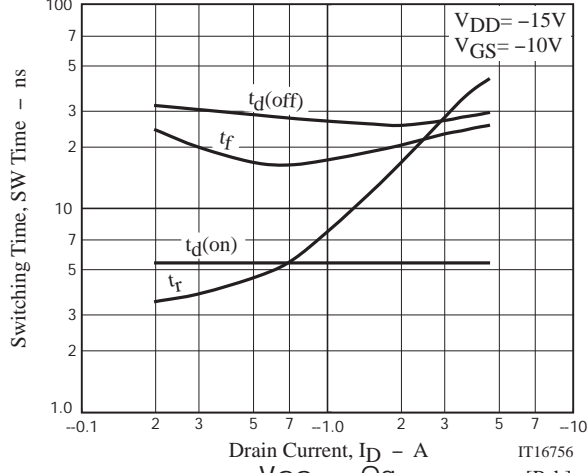
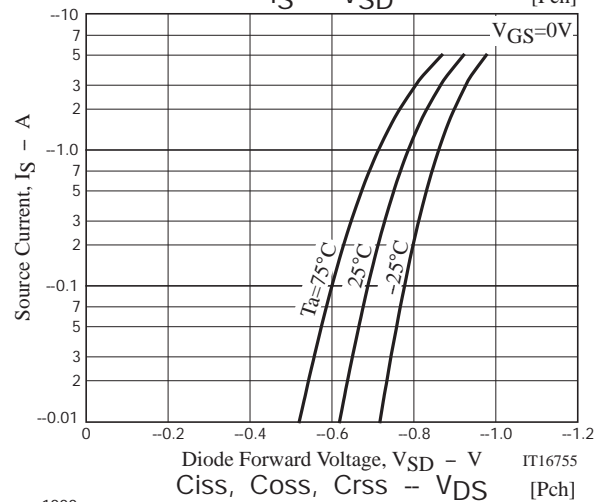
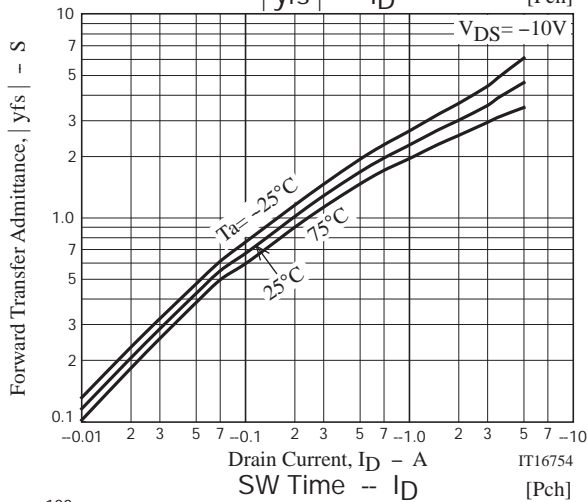
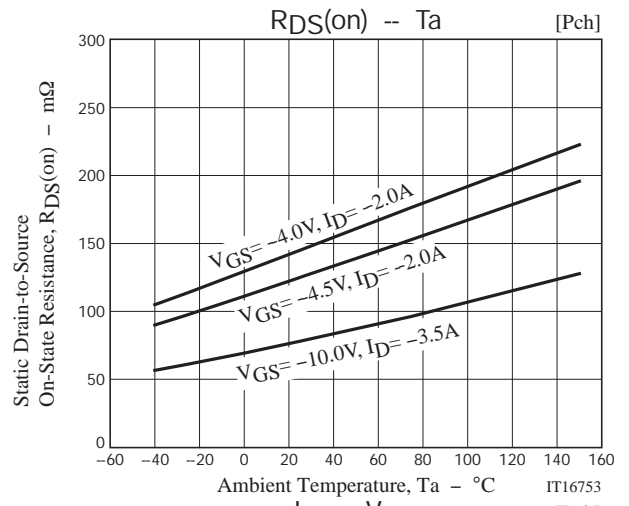
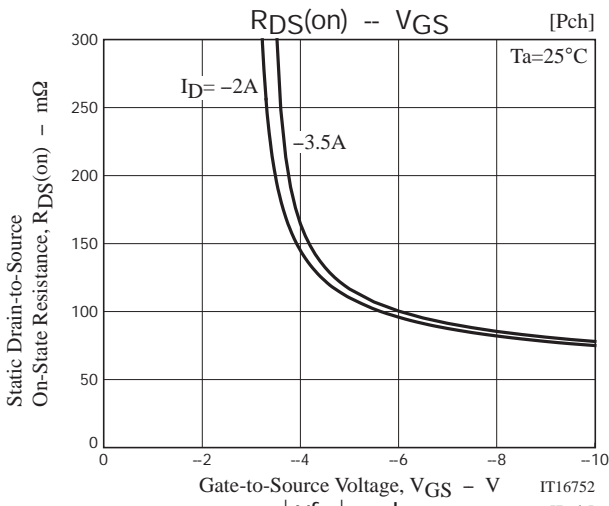


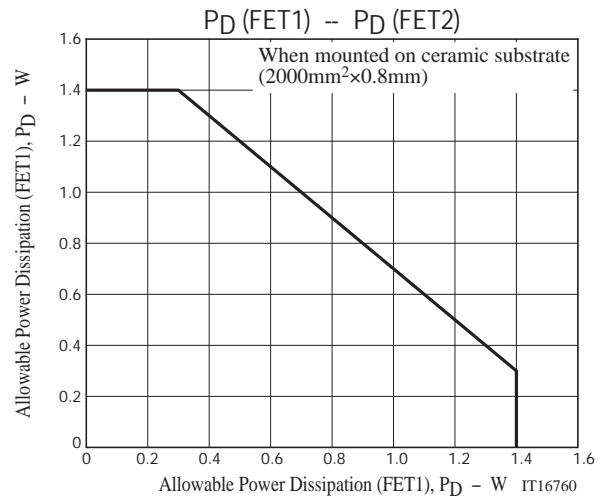
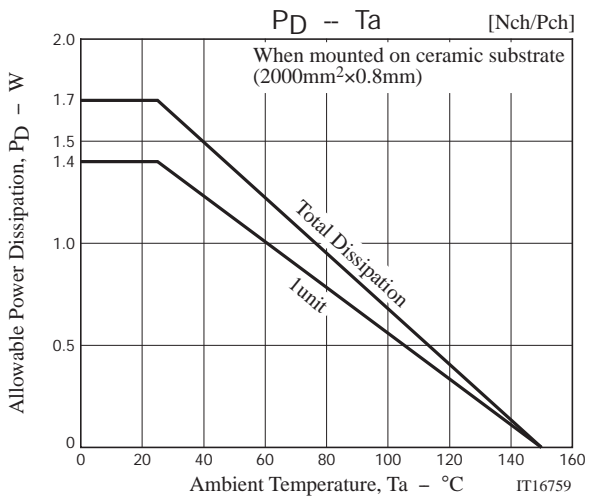
## Ordering Information

Device	Package	Shipping	memo
FW344A-TL-2W	SOIC8	2,500pcs./reel	Pb Free and Halogen Free









Taping Specification  
FW344A-TL-2W

1. Packing Format

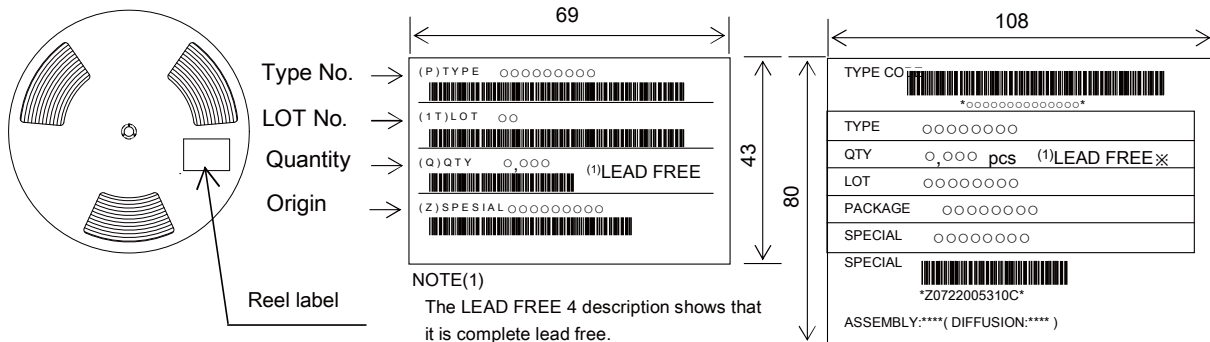
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX W206-112	Outer BOX W207-124
SOIC8	B202-101	2,500	12,500	25,000	5 reels contained Dimensions :mm(external) 340×95×340	2 inner boxes contained Dimensions :mm(external) 360×210×375

Packing method

Reel label, Inner box label  
(unit: mm)

Outer box label

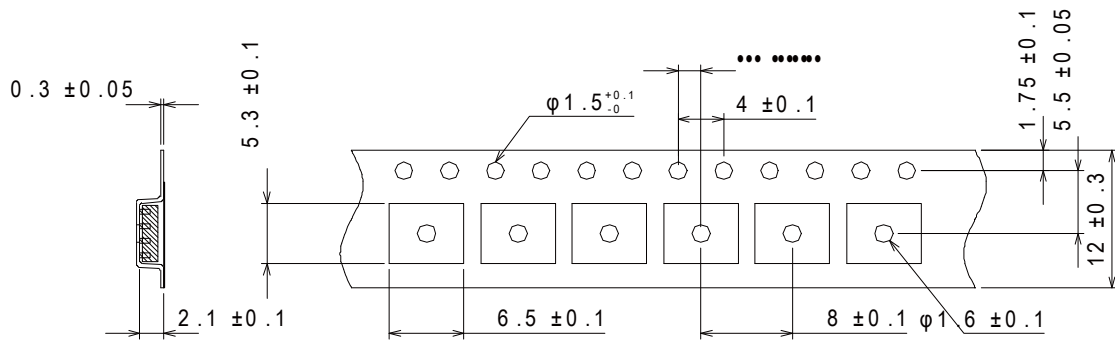
It is a label at the time of factory shipments.  
The form of a label may change in physical distribution process.



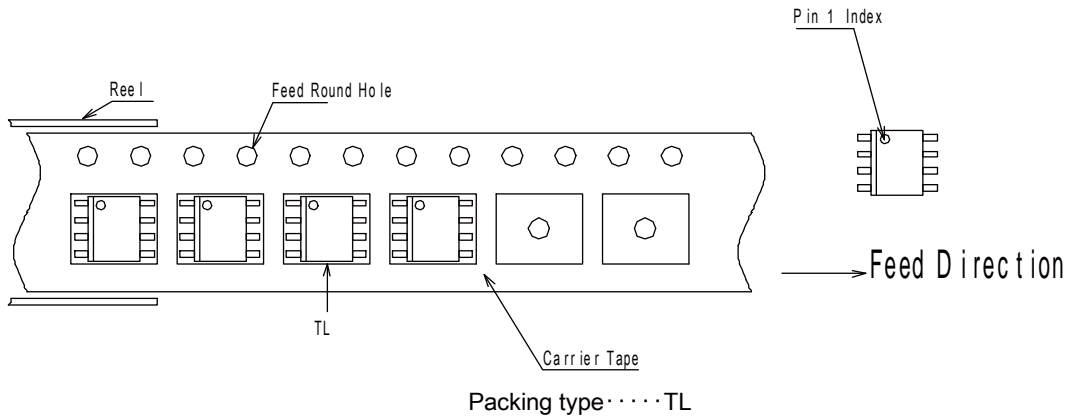
Label	JEITA Phase
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

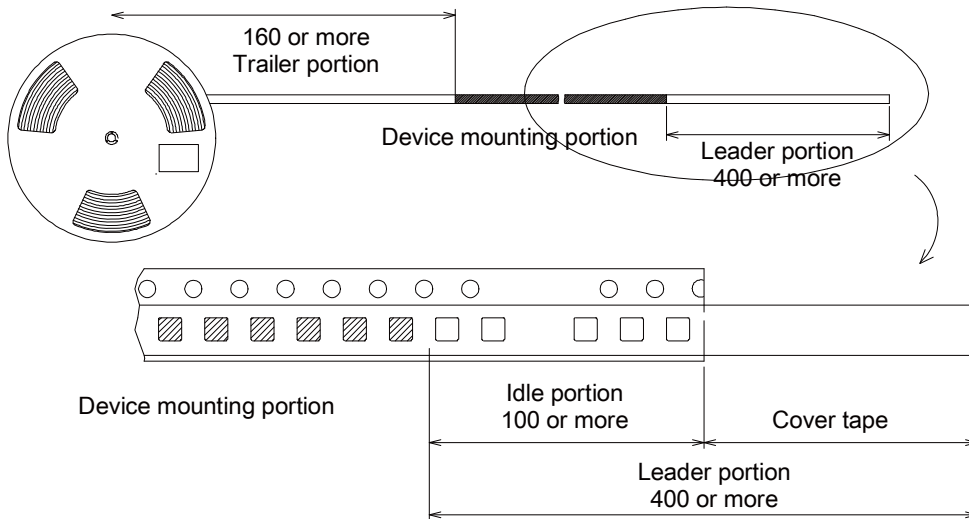
2-1. Carrier tape size (unit: mm)



2-2. Device placement direction



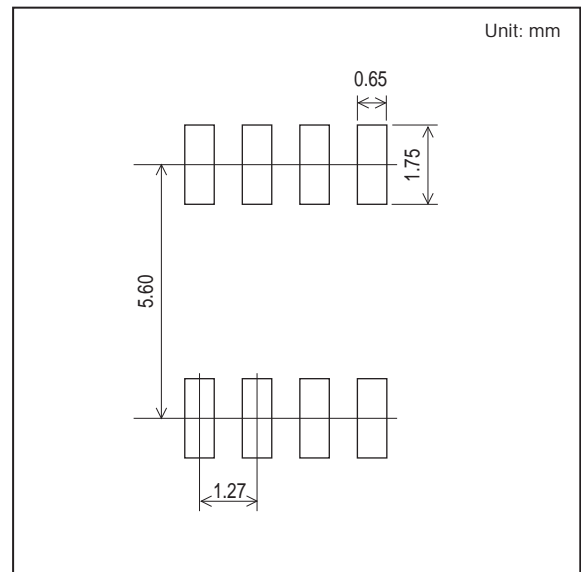
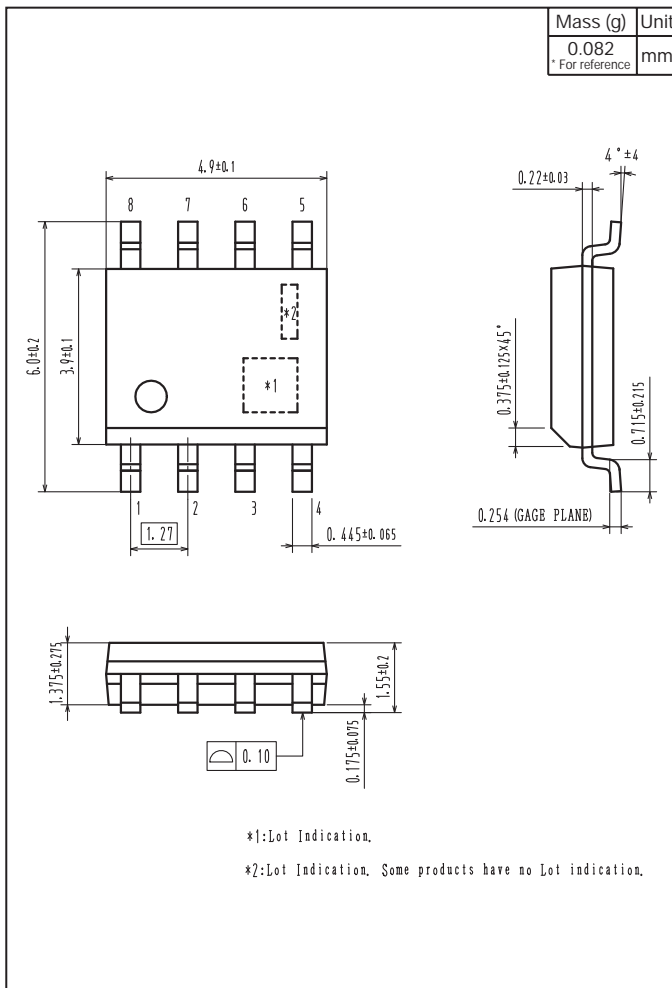
2-3. Leader portion and trailer portion (unit: mm)



# FW344A

## Outline Drawing FW344A-TL-2W

## Land Pattern Example





Note on usage : Since the FW344A is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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