/ Descriptions

TO-252

P-CHANNEL MOSFET in a TO-252 Plastic Package.

/ Features

V_{DS} (V) = -60V I_D =-14 A (V_{GS} = 20V)

$R_{DS(on)1}$@-10V 100m (Type.83m)

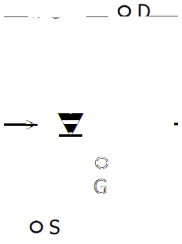
$R_{DS(on)2}$@-4.5V 130m (Type.100m)

HF Product.

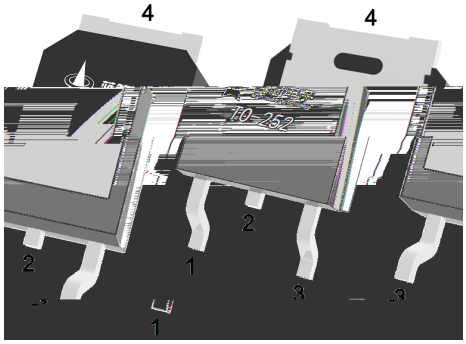
/ Applications

Motor Drive,Power Tools,LED Lighting.

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 D PIN 3 S PIN 4 D

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings(Ta=25)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	-60	V
Drain Current		I_D(Tc=25)	-14	A
Drain Current - Pulsed		I_{DM}	-42.5	A
Gate-Source Voltage		V_{GS}	±20	V
Power Dissipation		P_D(Tc=25)	32	W
Storage Temperature Range		T_{stg}	-55 150	
Thermal Resistance-Junction to Ambient	t 10s	R JA	28	/W
	Steady-State		55	
Thermal Resistance-Junction to Case	Steady-State	R JC	3.91	

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain–Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V I_D=-250 A	-60	-65		V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=-250 A	-1	-1.6	-2.5	V
Static Drain–Source On–Resistance	$R_{DS(on)}$	V_{GS}=-10V I_D=-10A		83	100	m
		V_{GS}=-4.5V I_D=-5A		100	130	m
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-60V V_{GS}=0V			-1.0	A
Gate-Body leakage current	I_{GSS}	V_{GS}=±20V V_{DS}=0V			±100	nA
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V I_S=-1A T_J=25			-1.2	V
Gate resistance	R_g	f=1MHz		6.5		
Input Capacitance	C_{iss}	V_{DS}=-25V V_{GS}=0V f=1.0MHz		890		pF
Output Capacitance	C_{oss}			90		
Reverse Transfer Capacitance	C_{rss}			64		
Total Gate Charge	$Q_{g(-10V)}$	V_{DS}=-10V V_{GS}=-10.0V I_D=-3A		12.3		nC
Total Gate Charge	$Q_{g(-4.5V)}$			6.3		
Gate-to-Source Charge	Q_{gs}			1.6		
Gate-to-Drain Charge	Q_{gd}			2.4		
Turn–On Delay Time	$t_{d(on)}$	V_{DS}=-10V V_{GS}=-10V R_L=5.4 R_{GEN}=3		12		ns
Turn–On Rise Time	t_r			20		
Turn–Off Delay Time	$t_{d(off)}$			20		
Turn–Off Fall Time	t_f			25		

/ Electrical Characteristic Curve

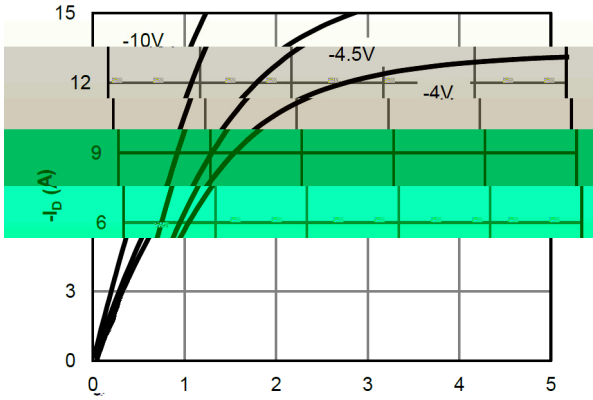


Figure 1: On-Region Characteristics

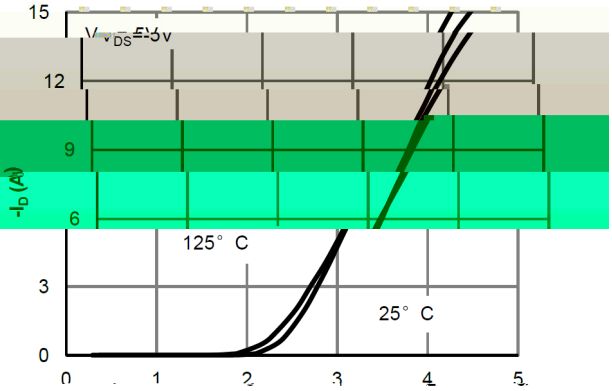
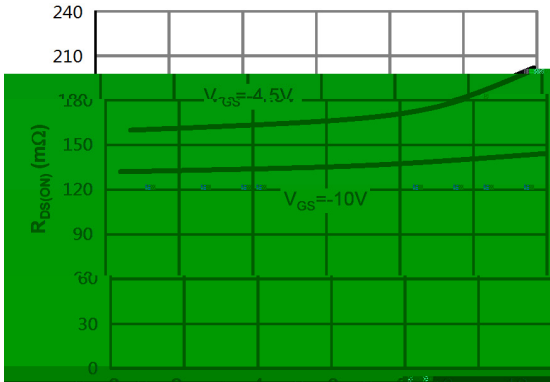
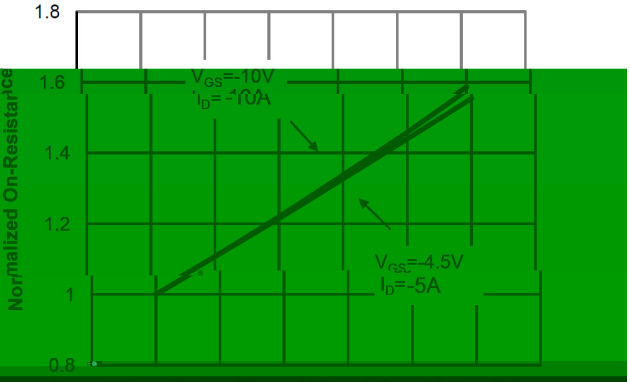


Figure 2: Transfer Characteristi

cs





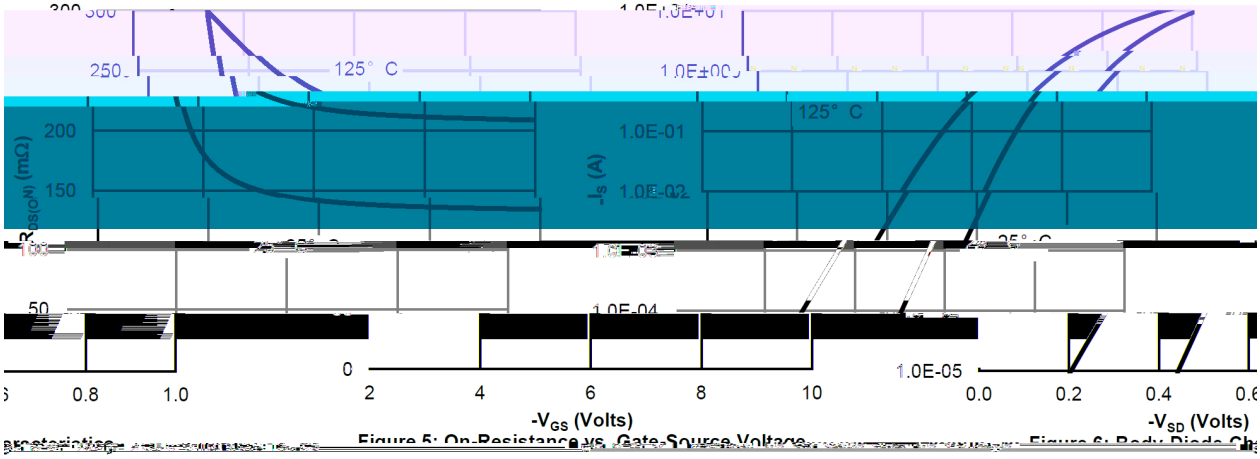
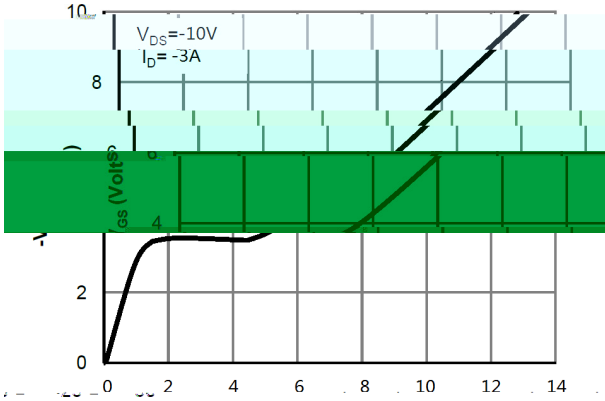


Figure 5: On-Resistance vs. Gate-Source Voltage

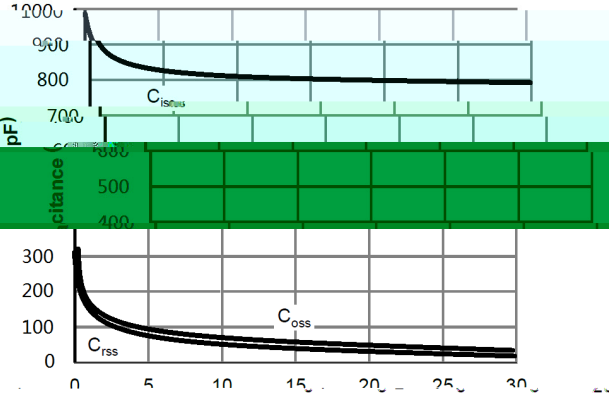
/ Electrical Characteristic Curve



Q_g (nC)

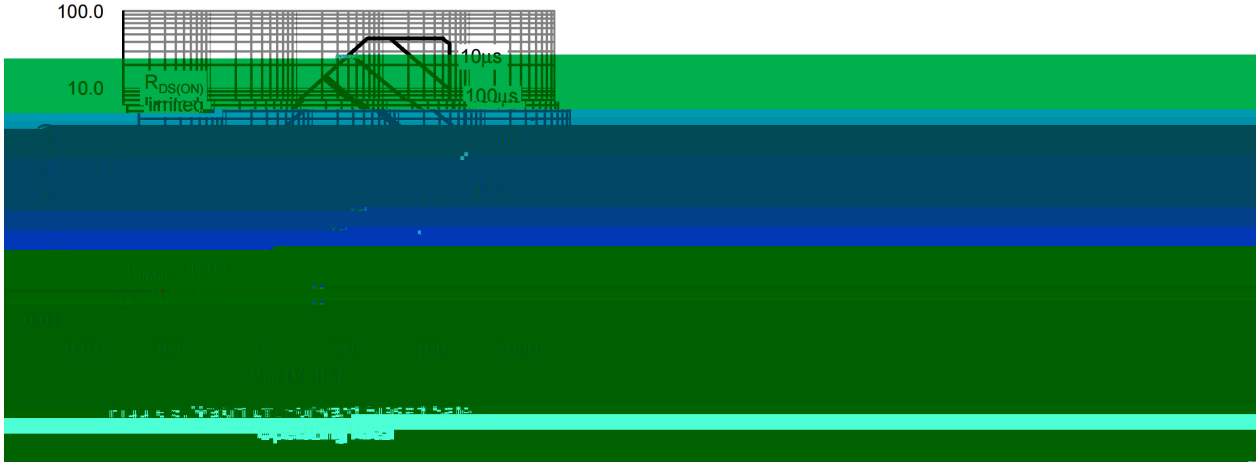
cteristics

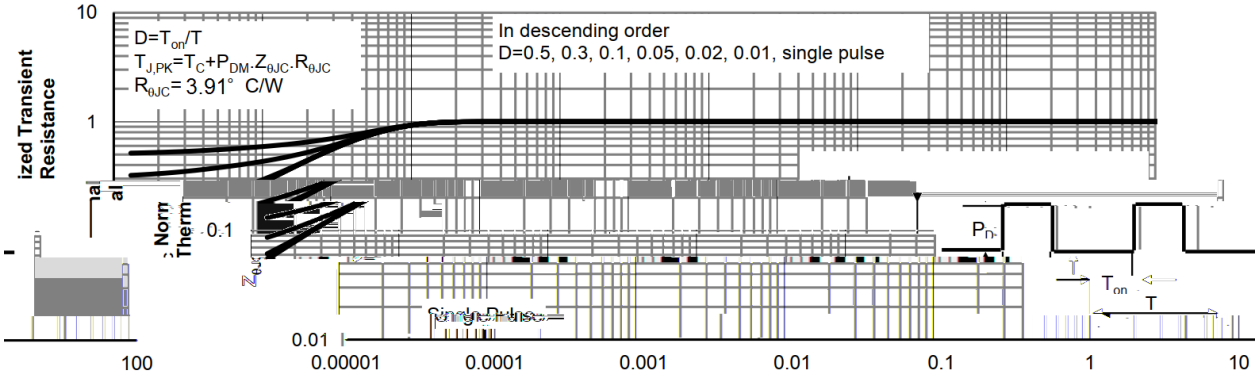
Figure 7: Gate-Charge Characteristics



$-V_{DS}$ (Volts)

Figure 8: Capacitance Chara

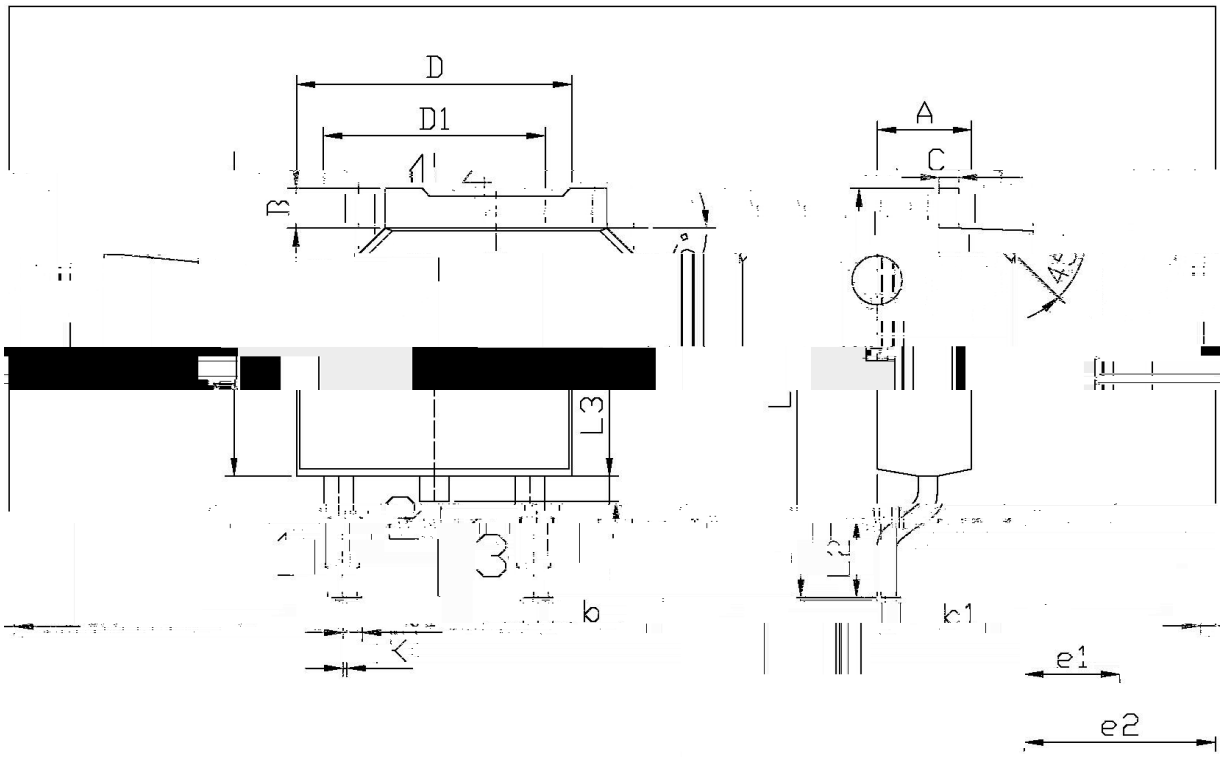




Pulse Width (s)

Figure 10: Normalized Maximum Transient Thermal Impedance

/ Package Dimensions

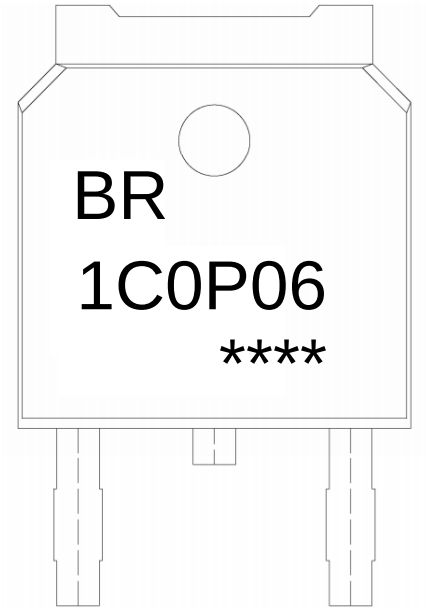


单位：mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
6.25	A	2.20	2.40	E	5.95
2.34	B	0.95	1.25	e1	2.24
		0.70	0.00		
9.85	10.35		b1	0.45	0.55	L1
C	0.45	0.55	L2	1.70	2.00
L3	0.60	0.90	D	6.45	6.75
K	0.00	0.10	J1	5.10	5.50

252 TO-

/ Marking Instructions



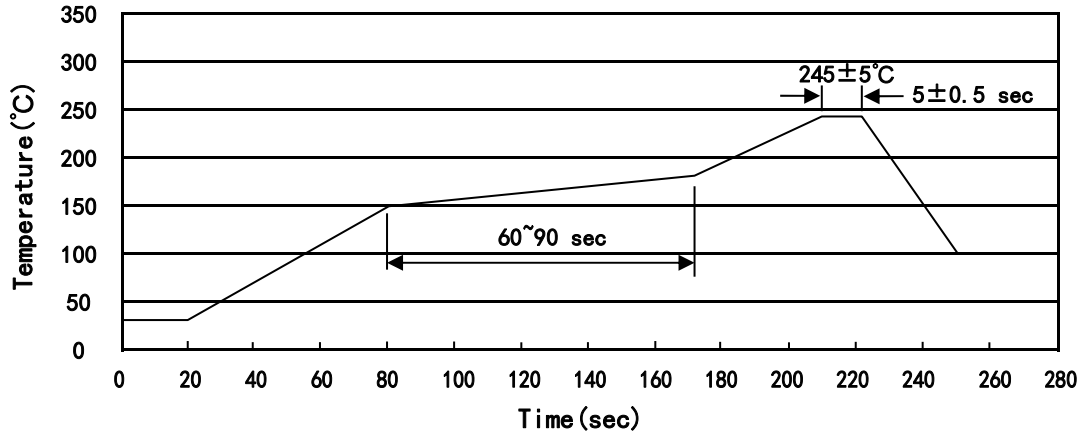
BR

1C0P06

Note:

BR:	Company Code
1C0P06:	Product Type Code
****:	Lot No. Code, code change with Lot No

( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

1		150	180		60	90sec;	1.Preheating:150~180 , Time:60~90sec.
2		245	5			5 0.5sec;	2.Peak Temp.:245 5 , Duration:5 0.5sec.
3				2	10	/sec.	3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

260	5		10	1 sec.	Temp.:260±5 Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type	Units					Dimension		(unit mm³)
	Units/Reel /	Reels/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Reel	Inner Box	Outer Box
TO-252	2,500	2	5,000	6	30,000	13 ×16	360×360×50	380×335×366

/ TUBE

Package Type	Units					Dimension		(unit mm³)
	Units/Tube /	Tubes/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Tube	Inner Box	Outer Box
TO-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180

/ Notices